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ROENTGENOGRAPHIC INTERPRETATION OF FUNCTIONAL REDUCTION OF FRACTURES

METHODS APPLICABLE TO THE ANKLE, WRIST AND ELBOW *

EDWARD HOLMAN SKINNER, M.D.

KANSAS CITY, MO.

Continuous observation seems to warrant attracting attention to methods of estimating the functional reduction of certain common joint fractures as they are recorded on roentgenograms.

The normal anatomic relationship of joint surfaces and anatomic landmarks may be plotted with almost geometrical exactness on roentgenograms taken in common standard positions. There are certain regional surgical axioms that guide the surgical estimation of proper reduction of fractures at the joints. These axioms have been well known, but their appreciation has probably been denied the continuous merit they deserve because the extensive use of roentgen examinations has relegated them to the background.

The x-rays have not changed anatomic landmarks or altered surgical axioms. It is with the idea of interpreting roentgenograms with due regard to recognized surgical principles that this simple paper is presented. The ankle, wrist and elbow will be discussed from a roentgeno-anatomic standpoint.

THE ANKLE

No matter what the character of fracture at the ankle, it is a surgico-anatomic axiom that the functional result depends on the reposition and maintenance of the astragalus under the weight-bearing surface of the lower end of the tibia. The normal weight-bearing line of the tibia passes directly through and bisects the articulating and opposing portion of the astragalus. This position of the astragalus beneath the tibia is maintained through the functional integrity of the internal and external malleolus. This is referred to as the ankle mortise.

The internal malleolus is a part of the tibia. The external malleolus serves to maintain the ankle mortise and keep the astragalus directly beneath the weight-bearing axis of the tibia.

Surgical ambition for functional results in fractures at the ankle demands that the astragalus be restored to this normal anatomic relationship. This restoration may be achieved without perfect anatomic reduction of fragments.

Roentgenograms of the ankle in the anteroposterior direction may be plotted to show this preservation or restoration of the weight-bearing line (fig. 1 *A*). If a line is drawn down through the center of the shadow of the tibia, it should normally bisect the shadow of the squared superior articulating surface of the astragalus.

When the recently fractured ankle is roentgenographed before the reduction, one notes the dislocation of the astragalus with the external malleolus (fig. 1 *B*), and the weight-bearing line of the tibial shaft does not bisect the head of the astragalus. Even though the fragments may appear end to end, this position of the astragalus (fig. 1 *B*) should be corrected so as to reestablish the weight-bearing line as in figure 1 *C*.

This weight-bearing line of the lower limb as plotted on the roentgenogram corresponds to the surgical demands for proper functional restitution of the ankle mortise. Even though the apposition of the fragmented bones may not be perfect (fig. 1 *C*), the functioning ankle will result if this, the ankle mortise and weight-bearing line, is restored to normal alinement. The position of fragments may be sacrificed to the restoration of function.

FRACTURES AT LOWER END OF RADIUS

The normal anatomic relationships of the lower end of the radius and ulna by palpation, dissection and roentgenograms show the styloid process of the radius entirely distal to the level of the styloid of the ulna. The normal slant of angle of the articulating surface of the lower end of the radius always shows the dorsal edge distal to the palmar edge. This angle of the radial joint surface allows better flexion than extension at the wrist joint. This angle must be restored to obtain good functional results in Colles' fracture.

Compression fractures at the lower end of the radius usually produce backward and upward displacement of the lower fragment of the radius with a slant of the articulating surface (fig. 2 *B*) at an angle directly different to the normal; i. e., the dorsal edge of the articulating surface is now proximal to the palmar edge. If the fragment is left in the position, the full flexion of the wrist is not obtained. This joint surface must be restored to its normal anatomic position (fig. 2 *A*) to achieve good functional results.

In the normal, if the long median axis of the shaft of the radius is bisected by a perpendicular line at the level of the ulnar styloid (fig. 3 *A*), one will constantly find the styloid of the radius distal to this transverse line. When the lower end of the radius is fractured with displacement in the usual backward and upward direction, this normal relationship is destroyed and the styloid of the radius becomes proximal or on the level of the transverse line erected at the ulnar styloid (fig. 3 *B*). The normal anatomic relationship must be restored to obtain satisfactory functional results.

* Chairman's address, read before the Section on Radiology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 13, 1928.

Methods of reduction or methods of splinting are not discussed here. There are many excellent methods, but the ultimate successful result depends on the restoration of these functional joint lines.

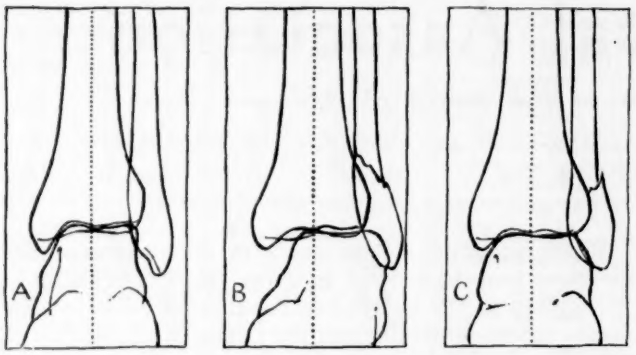

Fig. 1.—*A*, plotting of the normal weight-bearing central axis line of the tibia as it normally bisects the shadow of the head of the astragalus; *B*, failure of weight-bearing line of the tibia to bisect the head of the astragalus when the astragalus is dislocated outward externally with the fragment of the external malleolus; even though the fragments may be in apposition, if the astragalus is not reduced the result may be functionally embarrassed; *C*, correct reduction of astragalus and restoration of normal weight-bearing line.

FRACTURES AT LOWER END OF HUMERUS

The fracture that concerns us in this discussion is the transverse epicondylar fracture of the humerus with its usual displacement of the lower fragment backward, upward and sometimes laterally. The achievement of

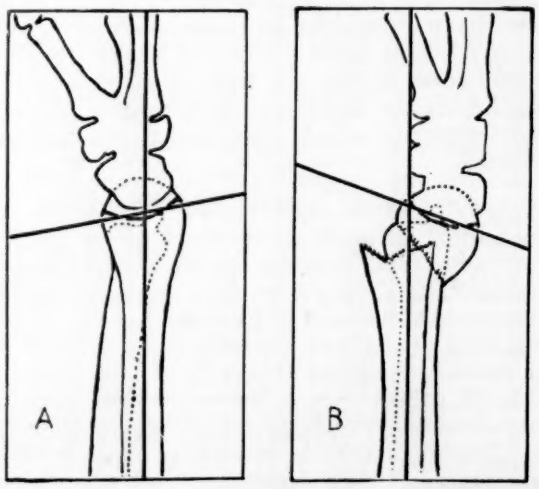

Fig. 2.—*A*, plotting of the angle of the joint surface of the lower end of the radius on the lateral roentgenogram of the normal wrist; *B*, angle assumed by the plane of the lower joint surface when the lower end of the radius suffers a compression fracture; the reduction should attempt to restore this joint plane to that shown in *A*.

normal function seems to depend on the reduction that restores the condyles of the humerus to their normal anatomic position anterior to the shaft of the humerus.

This normal anatomic relationship of the lower end of the humerus is plotted on the lateral x-ray exposure of the elbow very readily (fig. 4). It is noticeable that the condylar shadows are constantly anterior to the line drawn down the center of the humeral shaft.

There seems to be rather general surgical opinion that anatomic and functional restoration to normal is favored by fixation in the Robert Jones complete flexion position. The roentgenologic criterion or interpretation of such functional reduction depends on the restoration of the condylar shadows anterior to the line of the humeral shaft (fig. 4).

These suggestions for the functional interpretation of roentgen exposures of fractures at the commonest sites are promoted because they afford a method of accurately plotting lines that translate roentgen interpretation of proved surgical principles. Before the advent of the x-rays, these surgical landmarks were the only criterion of anatomic reduction and functional prognosis. The extensive distribution of x-ray apparatus tends to reduce the necessity of clinical palpation. But there is the demand for the more accurate intelligent inter-

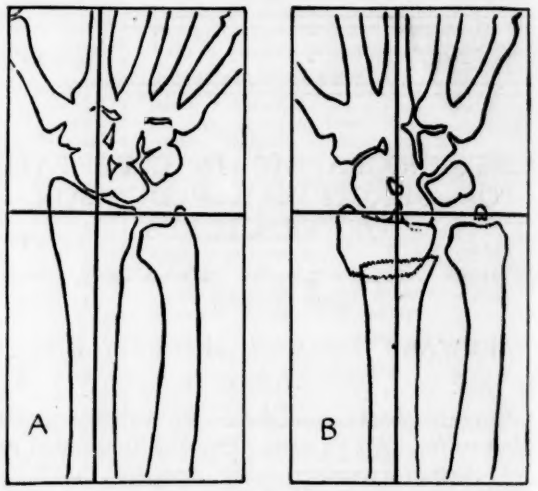

Fig. 3.—*A*, normal plotting at the wrist in the dorsopalmar roentgenogram; the cross line at the level of the ulnar styloid shows the radial styloid distal to this line; *B*, with the compression (Colles) fracture of the lower end of the radius with the usual displacement backward and upward of the lower fragment, the radial styloid occupies a position proximal to this transverse line at the level of the ulnar styloid; the functional result is better if the restoration of fragments secures the plotting as shown in *A*.

pretation of roentgenograms. If mechanical means of diagnosis and prognosis are to be dependable and to persist, there is the obligation and demand for precise methods of plotting mechanical lines on dependable roentgen exposures.

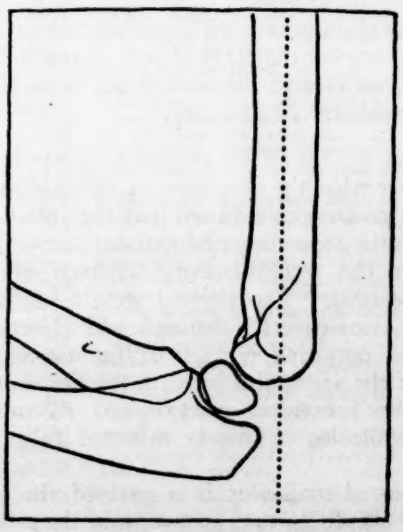

Fig. 4.—The normal anatomic outlines of the lateral roentgenograms of the elbow always exhibit the capitellum anterior to the central axis of the humeral shaft. The functional result depends greatly on the restoration of fragments so that this position of the capitellum is secured.

Normal anatomic relationship of landmarks and normal joint lines on roentgenograms do correspond with one another. The functional reduction of normal joint relations is more important than mere anatomic reduction of fragments.

1020 Rialto Building.

ROAD TAR POISONING

CAREY P. McCORD, M.D.
CINCINNATI

"Still bottoms," or the residues after coal tar distillation, find useful application as road construction materials, and are popular designated "road tars." The chemical composition of road tar is so complex as to constitute a "hell's field" for the industrial toxicologist, who may observe pathologic states of the greatest dissimilarity among workmen exposed to this substance. One patient may exhibit a skin carcinoma, or "tar cancer"; another a fulminating pulmonary edema; another extensive hemorrhage from the mucous membranes, lungs or stomach, or into the skin, and another convulsive seizures. This diversity of response to the toxic action of road tars becomes rational and probable in view of the variability of the chemicals that may be present.

Theoretically, road tar formation is preceded by the orderly extrusion of about 210 known substances directly derivable from coal through distillation. The principal fractions or "cuts" are shown in the accompanying table.

It should not be inferred that these fractions represent chemical entities. From "creosote oil" alone there may be derived no less than fifty different chemical constituents.

Theoretically, the residues should be free of all these extrusable constituents of coal. The actual situation is, or may be, entirely different. In pyridine, which boils at 115 C., may be found traces of anthracene, which boils above 270 C. Unexpectedly, and somewhat inexplicably, high boiling substances are present in traces along with low boiling distilling substances, and the reverse.

The uncertainties of practical commercial distillation are implied in the following cited specifications for road tars, which suggest the possibility of the presence of ingredients in tar which should have passed over at a temperature below 170 C.:

Water or ammoniacal liquor, not more than 1 per cent by weight.

Other distillate (light oils) with a temperature below 170 C., not more than 1 per cent by weight.

Distillate between 170 and 270 C. (middle oils), within the range of from 12 to 24 per cent by weight.

Distillate between 270 and 300 C. (heavy oils), within the range of from 4 to 12 per cent by weight.

Phenols or crude tar acids, not more than 5 per cent by volume.

Naphthalene, not more than 8 per cent by weight.

Road tars are to be accepted as retaining or containing small and variable amounts of many of the substances supposedly extruded under the influence of heat at lower temperatures. Explanation of this situation is to be found in part in the fact that the lower boiling chemicals are the building units through the combination of which higher compounds are formed by polymerization. A coal tar from which all benzene has theoretically, been distilled may exhibit this substance as a result of the decomposition of other compounds such as cyclohexanes, which, on being heated, break up into hydrogen and benzene. Whenever anthracene is present in xylene solution, and when exposed to daylight, it is at once polymerized into dianthracene. If, however, it is placed in a dark room this dianthracene is depolymerized to anthracene. It is through such shiftings as these that all initial fractions of coal tar distillation and the pitch residues therefrom may reveal unexpected chemical constituents.

In addition to this chemical lability, variations in the make-up of coal tar fractions and residues may be explained on mechanical bases. Frequently it is not practical to distil coal beyond the temperature of 270 C., thus leaving the entire fraction of green oil or anthracene oil as a component of the residue. At other times, as a result of distilling at such high temperatures as approximate 370 C., the resulting pitch is so brittle and lacking in fluidity that it becomes necessary "to cut back" this material by the addition of light oil or crude naphtha. In this way road tars may exhibit a high content of benzene, and benzene poisoning may thus arise. Through the same exigencies of practical distillation, toluene, which is regarded as far less toxic than benzene in the production of chronic poisoning, may come to contain a potentially dangerous quantity of benzene. Commercial benzene is itself not a pure substance, yielding appreciable quantities of thiophene and toluene, and at times smaller quantities of pyridine, amylene, acetnitrile, methyl cyanide and carbon bisulphide.

Principal Fractions from Coal

Product	Distillation Temperature Range
Crude naphtha and light oil	Up to 210 C.
Carbolic oil	From 210 to 240 C.
Creosote oil	From 240 to 270 C.
Anthracene oil	Over 270 C.

While the greater number of persons with road tar poisoning may be expected to evince signs and symptoms of the anthracene group of chemicals, such as described by McBirney,[1] other intoxicated persons may manifest the signs of poisoning from benzene and the phenols. There is no characteristic clinical picture of road tar poisoning.

A case of road tar poisoning, which presented at its inception signs suggestive of the convulsions of phenol, at a later time the pulmonary edema of anthracene, and still later hemorrhages suggestive of benzene, recently was heard by the Industrial Commission of Ohio, to which body I am indebted for the privilege of this presentation.

REPORT OF CASE

Dec. 17, 1925, M. S., the claimant, a man, aged about 30, was employed as a tar wagon tender engaged in highway construction. The precise type of tar used at that immediate time cannot be established. On the morning of this day, he built a brisk fire beneath the tar boiler, tightly closed the various valves, and then went about other duties about one-third mile away, where he remained the greater portion of the day. Just what temperature and pressure was attained in the tar boiler is not ascertainable. In the afternoon, a passing motorist told him that school children had opened up the egress valves of the tar boiler and that the tar was wasting on the ground. He ran the one-third mile distance, arrived out of breath, waded through a considerable lake of tar, and was at first unable to locate the shut-off valve because of clouds of fumes; he took several deep breaths, and finally, after less than one minute exposure, shut off the valve and darted away from the danger zone. Immediately he became violently ill with convulsive seizures.

On the same day the claimant was carried to a hospital 30 miles away, where no more convulsions took place; instead, a marked pulmonary edema was present, associated with chem-

1. McBirney, R. S.: Anthracene, Industrial Hygiene Bulletin, New York State Department of Labor 1: 45 (June) 1925.

ical burns of the mouth and entire respiratory tract. Apparent recovery from this condition was sufficient to allow him to leave the hospital within one week, but on the seventh day following his injury, he developed a severe hemorrhage, losing approximately one-half pint of blood, which originated, as best as can be determined, from the lung or respiratory tract. Other and frequent hemorrhages are attested to by competent physicians. At times the wasted blood suggested an origin from the stomach, being coffee ground in character, and at times frothy, as though admixed with respired air. The claimant, who apparently is of inborn defective mentality and thus not entirely reliable, stated that up to Sept. 1, 1928, he had suffered from no less than 1,000 hemorrhages in excess of 4 tablespoonfuls of blood. Within six weeks of the date of injury he presented an acute nephritis, with some blood in the urine during this period.

This condition of multiple hemorrhage, nephritis, anemia and wasting persisted up to about November, 1926, when the claimant began to manifest marked neurasthenic and hysterical symptoms, with a diminution in the foregoing. Gradually he lost the use of the left leg in its entirety, which was associated with very marked wasting. This was accompanied by a gradual loss of sphincter control of the bladder and rectum, so that it became necessary to wash out the bowels of the patient daily and frequently to catheterize. Failure to catheterize at approximately eight hour intervals at times led to prompt and high fever, approximating 105 F. Marked distention took place along the entire intestinal tract. Gradually, also, the patient lost all skin sensation over the body, except for a small area situated on the right flank and a small area around the mouth. Periosteal sensation simulated skin sensation because of the closeness of the skin and the periosteum in the wasted left thigh and leg.

About the first half of 1928, the patient developed a paralysis in the right leg with doubling back of the lower part of the leg at the knee under the thigh, with the heel resting on the buttocks and the knee extended across the line of the trunk of the body over the left thigh.

The paralyses have been attributed by various neurologists to the result of a hemorrhagic lesion into the spinal cord, with some harm extending as high up as the fourth cervical vertebra. These neurologists recognize the marked hysterical element and some actual misrepresentation and exaggeration. Other neurologists maintain that all of the apparent neurologic conditions are functional, and that no cord lesion exists. This in part is borne out by the extension of the recently paralyzed right leg and thigh under suggestion at the time of a spinal puncture, and by the complaint of severe pain when electric currents were applied to portions of the body in which there was ordinarily no admitted sensation.

The claimant's mental state is abnormal, although he may not be regarded as wholly irresponsible. Born with some mental defection, he is at this time given to lying, shouting of hymns at the top of his voice and the writing of inane and morbid poetry; there is utter lack of cooperation with physicians and hospitals, and he is given to the dramatic and oratorical type of conversation.

Apparently no blood counts or other laboratory tests were made early in the patient's illness. The physicians in charge, approximately one year after the onset of the disease, procured various laboratory examinations. At that time laboratory evidences of a nephritis were established, and a secondary anemia was present, together with a slight reduction in the white cell count. At the time of our examination, approximately three years after the injury, all laboratory observations, including appropriate examinations of the spinal fluid, were within normal limits, except for a red cell count that was indicative of a secondary anemia.

At the time of the preparation of this paper, the patient is bedridden, without sensation, paraplegic and mentally aberrant. Granting that the evidence of a lesion into or about the spinal cord is not complete, it is accepted that the initial convulsions, the pulmonary edema, and the persistent hemorrhages are related to the road tar, to which substance exposure was provided under conditions favorable to injury.

COMMENT

For medicolegal and compensation purposes, road tar poisoning must be envisaged not as a clinical entity with a regular recurrence of similar manifestations from case to case, but as a series of little related intoxications.

34 West Seventh Street.

THE LOW THERAPEUTIC INDEX OF NEOARSPHENAMINE

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At the present time at least 90 per cent of the arsphenamine that is used by physicians is of the neoarsphenamine variety. The real advantages of this drug are that it does not require neutralization and that it may be somewhat less toxic. Regarding the last mentioned point, it should be remembered that results obtained in animal experimentation do not necessarily apply to man. There is more than one experienced physician who believes that the percentage of reactions following the use of the neutral drug is greater than that following the use of the older drug. Certainly my experiences both in the Georgetown Clinic and in private practice have been such. A survey of the literature shows that these experiences are not unique. It would seem that the chief reason for the increased sale of the drug has been the injudicious activity of the manufacturers. The advertising material and the activity of the salesmen have practically led the average physician to feel that the neo preparation is safer and just as efficacious. In the words of Osler, the situation is enough "to make the judicious grieve."

As a matter of fact, it has been shown that neoarsphenamine is not nearly so stable as is the older preparation. Not only are its keeping powers decreased but it oxidizes readily on the slightest shaking of the solution. In addition to this, no two lots have exactly the same spirocheticidal power, the difference sometimes being as much as 90 per cent.

From the standpoint of the individual patient and the public, the serious defect is that it will not always kill the organisms in situ. The lack of sterilizing power of certain English neoarsphenamines have been reported by Dale and White.

I now have three observations in which living spirochetes were found following one dose of neoarsphenamine. In one instance the chancre was labial and in the other two genital. In each of these patients numerous spirochetes were found by dark field; treatment was administered the same day and numerous organisms were demonstrated either in forty-eight or seventy-two hours after treatment. This has occurred with two different brands of neoarsphenamines. As it has always been the custom of both the office and the clinic to treat fresh cases of syphilis with arsphenamine, our statistics concerning the use of neoarsphenamine are not great. However, eight patients receiving the neoarsphenamine have been reexamined and in three of these the organisms were recovered from the chancre. Unfortunately, the exact figures are not obtainable, but between twelve and fifteen patients with chancres and treated by arsphenamine were reexamined by dark field illumination, and in no instance could spirochetes be found.

Hence, it is obvious that neoarsphenamine frequently lacks the sterilizing power of the older drug.

In view of the facts set forth, there would seem to be no excuse for the popularity of neoarsphenamine. All experienced syphilologists take the same view.

1911 R Street.

SERIAL EXAMINATIONS OF THE FECES FOR OCCULT BLOOD IN GASTRIC AND INTESTINAL CANCER*

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AND
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In spite of the fact that the guaiac test for the chemical detection of small amounts of blood was introduced in 1893 (by Weber), it was not until the beginning of this century that the importance of the detection of occult blood in the stool became recognized as an aid in the diagnosis of malignant conditions of the gastro-intestinal tract.[1] The examination of the stool for occult blood then became a valuable routine procedure, but there is today a very definite danger that this procedure is again becoming neglected. One reason for such a neglect is the short-cut to diagnosis that is offered by the more and more excellent results of the silhouette study of the gastro-intestinal tract. The fact remains, however, that even with the x-rays the diagnosis of an early carcinoma of the stomach is difficult and too seldom made.

Another reason for the diminishing popularity of the chemical study of the stool is a feeling, partly unfounded, of uncertainty in regard to the interpretation of a reported positive occult bleeding. The most obvious sources of error—easily bleeding gums, traumatic bleedings from the passing of a stomach tube, introduction of blood with the food or the feeding of certain drugs—are comparatively easily ruled out. More in need of consideration is the question as to the sensitiveness of the test most commonly used. Is the benzidine test altogether too sensitive, as some felt when it was first introduced by the Adlers[2] in 1904, or are the results too irregular, if the responsibility for the reagent is placed in the hands of often changing laboratory technicians or medical students?

Since the color reaction obtained by the oxidation of benzidine is a nonspecific one, it becomes necessary to determine what other catalyzers than the iron of the hemoglobin and the hemoglobin derivatives might be present in the feces. Gregersen,[3] in 1916, found that the catalyzing power of normal stool did not exceed the catalyzing power of 0.03 per cent concentration of blood. A test one-third as sensitive (that is, sensitive for 0.1 per cent of blood) might, according to Gregersen, be accepted from a clinical point of view as specific for blood in the feces. Gregersen worked out the details for the standardization of the test in this and other respects. Following the suggestion of Grünwald[4] (1907) to use a stable oxidizing agent instead of the unstable hydrogen dioxide, Gregersen made use of barium dioxide in a concentration of 4 per cent. The acidity Gregersen regulated to the acidity of a 50 per cent acetic acid solution. The concentration of the benzidine is kept at 0.5 per cent.

The practical application of the test, thus standardized, is simple. A powder containing 0.025 Gm. of benzidine and 0.2 Gm. of barium dioxide is dissolved in a measuring cylinder containing 5 cc. of 50 per cent acetic acid.[5] A portion of the feces the size of a hemp seed is removed from the interior of the sample and smeared onto a clean slide. A few drops of the reagent are added. In the presence of blood a blue color will develop in less than two minutes, varying in rate and intensity with the amount of blood present.

MATERIAL

This study aims to emphasize the diagnostic value of serial tests for occult blood in malignant conditions of the gastro-intestinal tract, as listed in the accompanying table.

The diagnoses were confirmed at operation or by necropsy except in some cases of cancer of the esophagus or cancer of the rectum in which the diagnosis was otherwise shown. In doubtful cases, microscopic diagnosis was resorted to.

Cancer of the Esophagus.—In four cases the bleeding was entirely absent, in three it was intermittent and in three there was constant bleeding. Seven cases examined post mortem showed either large papillomatous masses or extensive ulcerations. In one patient with persistent bleeding, the growth extended well into the stomach. In some cases of esophageal spasm, the benzidine reaction is of importance in differentiating uncomplicated spasms from reflex spasms due, for instance, to cancer of the pylorus.

Malignant Conditions Tested for Occult Blood

Diagnosis	Constant Occult Bleeding	Intermittent Occult Bleeding	Absent Occult Bleeding	Total
Cancer of the esophagus	3	3	4	10
Cancer of the stomach	49	11	6	66
Cancer of the small intestine	3	2	..	5
Cancer of the colon	7	1	..	8
Cancer of the rectum	14	1	1	16
	76	18	11	105

Cancer of the Stomach.—In forty-nine of our sixty-six patients we found persistent hemorrhage, and here the sign was often of material aid in the diagnosis. In eleven instances the bleeding was intermittent and of varying intensity. In six patients no occult blood was detected. These patients all had pyloric cancer, five had obstruction, and four cancers were cirrhotic. In two the cancer was found on the side of the smaller curvature.

The pathology of the cancers showing intermittent occult bleeding was not uniform. One scirrhous cancer caused obstruction and here the reaction never became very strong. Four patients had colloidal cancers with more severe intermittent bleeding.

Occult bleeding might be absent for long periods, but in the large majority of our cancer patients it occurred sooner or later. In order of occurrence it does not take a regular place among the other symptoms and it has not been possible to find when, in the course of the disease, it appears, for only a few cases were observed when the bleeding might be thought to have commenced.

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* From the Medical Service of the Bispebjerg Municipal Hospital, Copenhagen.

1. Boas: Die Lehre von den okkulten Blutungen, Leipzig, 1914.
2. Adler, O., and Adler, R.: Ztschr. f. phys. Chemie **41**: 59, 1904.
3. Gregersen, J. P.: Ugesk. f. Læger **78**: 697, 752, 1197, 1260, 1916.
4. Grünwald: Centralbl. f. inn. Med. **28**: 105, 1907.

5. The reagent thus prepared is placed on the market by Lövens Kemiske Fabrik, Copenhagen, under the name of benzidine for Gregersen's test.

It may be the first sign localizing the cancer to the gastro-intestinal tract.

Cancer of the Small Intestine.—Of four cases, one was duodenal and gave reactions similar to those in cancer of the stomach. Others varied in intensity; in one case the test was negative the last month of life; in others, at other times, but the steady soaking of blood gives to the series of reactions a characteristic which no single test could give, thus emphasizing the importance of serial observations.

Cancer of the Colon.—Seven cases showed strongly positive reactions, and in one case the bleeding was intermittent.

Cancer of the Rectum.—Fourteen cases gave positive reactions, in some cases persistently over long periods. In one case two negative reactions were obtained, and one case only was diagnosed by rectoscopy before the reaction to the benzidine tests began to be positive. Later in this case persistently positive reactions were obtained, though frequently they were not very intensive.

COMMENT

In sixty-six cases of cancer of the stomach, sixty showed occult bleeding at some time or other but six gave persistently negative reactions, and their occurrence forces one to the conclusion that even a repeatedly negative test for occult bleeding does not rule out cancer of the stomach. This holds particularly true when cancer of the pylorus is suspected.

Our observations agree with those of Gregersen in emphasizing the frequency of occult bleeding in cases of gastro-intestinal cancer, but Boas has called attention to the persistent absence of such bleeding in some cases of cancer obstructing the pylorus. We agree with Holton,[6] however, in his criticism of these two authors that occult bleeding is not necessarily persistent in all other cases of gastric cancer. We differ from Gregersen, who found persistent bleeding in all kinds of gastro-intestinal cancer by having found frequent negative reactions in cancer of the esophagus, and by having found occasional negative reactions lower down in the gastro-intestinal tract.

6. Holten, C.: Bibliot. f. Læger **119:** 379 (April) 1927.

Early Tuberculosis and the Family Physician.—The responsibility of prevention and early diagnosis rests to a large extent on the general practitioner of medicine. The specialist in chest diseases needs no admonition along this line. He knows how to recognize early tuberculosis and he knows how the evil can be prevented, but only in a small percentage of cases does he have a chance to make an early diagnosis. The case usually comes to him late. It is the family doctor who is in position to do the greatest good to the greatest number along the line of prevention and early diagnosis. It is the family doctor holding the respect and confidence of his people who first comes in contact with the candidate for tuberculosis. It is the family doctor who knows all the idiosyncrasies of his patients, their family histories, their environment, their mental make-up and their social and economic status, and it is he who can best advise them what to do and what not to do to keep and preserve their health. It is to him that they first come with their story of ill health, and it is his duty to be on the alert and able to recognize the early signs and be willing to take the time for careful investigation, and, when once he has made up his mind, have the courage of his convictions and sufficient earnestness of purpose to impress the patient and his family that proper treatment must be instituted before it is everlastingly too late. —Knipe, J. B.: Prevention and Early Recognition of Pulmonary Tuberculosis in the Young Adult, *J. Iowa M. Soc.*, December, 1928.

ANATOMIC VARIATIONS AND ANOMALIES OF THE SPINE

RELATION TO PROGNOSIS AND LENGTH OF DISABILITY *

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Nearly every patient who has had any kind of an accident, even remote, and who discovers any sort of pain in the back, no matter where and when, almost invariably attributes this backache or pain to the accident. Ordinarily he is not willing to believe that any abnormality of the back can be brought about by anything other than traumatism, and he can usually trace the origin of this trouble—accurately to his own satisfaction—to some strain or blow.

The occurrence of injured backs is of much interest to all surgeons, as well as to all roentgenologists. This is true also of railway chief surgeons. The railway spine of Erickson, which made its meteoric appearance before the medical profession and in the courts years ago, has now insinuated itself among a larger group of people, including the medical fraternity, as the so-called industrial spine. Anomalies and anatomic variations in the symptomless spine are therefore of interest to surgeons and roentgenologists in any attempt to determine the true etiology and prognosis of back sprain or other injuries to the spine.

With the addition of the x-rays to our armamentarium and the frequent improvement in technic, it is easy to discover variations and anomalies of the spine. The incidence of these conditions when traumatism or pseudotraumatism has occurred has led to many misinterpretations of the picture, and this fact was kept in mind constantly in the study of this series of symptomless spines.

It is true that the spine conforms in a general way to normal, though there are many minor variations. Deviation of the transverse processes of the spine, or, in fact, deviation wherever muscular attachment is afforded, seems to be the rule. To be sure, there is the so-called normal spine of the textbooks, but rarely do the various vertebrae conform to the strictly normal. These abnormalities seem to obtain in a greater degree in the lumbar region than elsewhere. I have heard repeatedly that an individual's spinal column is as characteristic of that individual as his face or his features. In other words, the vertebrae and their characteristics are as the individual has trained them to be from early infancy. The spine has accommodated itself to postural and muscular strains before and after complete ossification. One would not expect the spine of the laborer to be like that of the office man, or the spine of the athlete to be like that of a person of sedentary habits. We know that anomalies of the spine exist from statistics available in from 8 to 10 per cent of all persons examined. For the purposes of this paper, it is not necessary to discuss more than a few of these anomalies.

Sacralization of the transverse processes of the fifth lumbar vertebra has been receiving much attention from clinicians and roentgenologists during the last few years, both in this country and abroad. I believe that too much importance has been attached to the sacralized transverse process—more than its medical significance warrants. Yet, whenever lumbar pain is evidenced, search is generally made for a sacralized transverse

* Read before the Section on Radiology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 13, 1928.

process. I have found a large number of sacralized transverse processes in this group of symptomless spines and the individuals in whom they were found must have had that condition from early youth, with probably some growth of the process, perhaps, after ossification. Just why this condition should cause pain after years of impingement, with or without the formation of a true joint, is difficult to explain. However, we do know that bursae appear in the neighborhood of these joints, which may be a partial explanation.

The foremost investigators of this country, and those abroad as well, seem to be at variance as to the relationship of sacralized transverse processes and pain—either with or without back injury. Various opinions prevail: that sacralization produces an abnormal fixation which renders the part more susceptible to strains and subluxations, and that unilateral sacralization may act as a fulcrum which exerts unusual tension with certain movements. It is pointed out that individuals who suffer injury when this anomaly is present form a group whose symptoms obstinately persist as compared with like injuries in which no such anomaly is demonstrable. Operations have been devised for the removal of transverse processes which were sacralized, but long periods of time were consumed before relief from symptoms was noted.

It is Hartung's opinion that "in general a simultaneous occurrence of pain in the lumbar region and sacralization hardly warrant a definite conclusion that the pain is due to sacralization, although the frequent association of the two might be more than a coincidence."

Howard P. Doub of the Henry Ford Hospital says:

> In those cases showing sacralization—fusion of the transverse processes to the top of the sacrum, or pseudosacralization in which the transverse processes are large and fan shaped and articulate with the top of the sacrum or either one or both sides—we believe there is a definite pathology. These, in most cases, either cause pain in the lower back or are potential trouble makers. Frequently a slight injury or strain is apparently the exciting cause, bringing on a long continued chain of symptoms emanating from this area.

Hartung and others are of the opinion that "operative removal of the process or processes has in some instances removed such pain and this fact would tend to confirm the inference that in some instances, at least, there is an etiologic relationship." He also calls attention to the fact that with back injuries the pain and disability are much more apt to persist if sacralization is present, and further takes it for granted that in the light of our present knowledge it is fair to assume that when other causes can be excluded there is some prior connection between a dull aching pain low down in the lumbar region, which is increased by certain movements, and the presence of a sacralization.

Sherwood Moore believes that individuals with this anomaly who have suffered injury to the back form a group whose symptoms most obstinately persist as compared with examples of like injury in the absence of the anomaly, and that the existence of the sacralization has an important bearing industrially and in relation to personal injury cases. A very pertinent remark by him is that "sacralization of the transverse process of the fifth lumbar vertebra is a congenital anomaly and is, as the term implies, the taking on of sacral characteristics by the process. The term should, therefore, be restricted to designate only such deviation." Simple increase in the length, bulk and approximation of the shadows of the transverse processes and those of the sacral alae do not constitute sacralization. Roentgenographically, the last may be produced by the projection of the images of the transverse processes by the angle of incidence of the rays, because the latter is not perpendicular to the anterior surface of the fifth lumbar vertebra on the sacrum. The angle of the former on the latter does not permit a perpendicular incidence of the ray on the anterior aspect of the vertebra in question. The result in either case is the production of an apparent impingement of the process on the sacrum.

Statistics available would lead one to believe that this condition is reversive—atavistic, in fact. In the lower races sacralization of the fifth lumbar transverse process is extremely common, occurring in almost 45 per cent. In certain types of monkeys the percentage is still higher. This would lead one to believe that this condition would then be found in the human race in persons living a highly acrobatic and active life, and I believe this statement to be true. It appears to me that a sacralization of the transverse process is an effort of nature to overcome a structurally weak spine at its base, to bolster up and strengthen a weak framework, so that the individual may do the work that his spine was not originally fitted for.

Supernumerary ribs were a very frequent occurrence in the series of spines that I examined. The narrow line—not always smooth and regular in outline—is mistaken very frequently for a fracture of the transverse process. In all of the lumbar vertebrae this anomaly occurred so frequently—the distal end of the process assuming all sorts of angles and shapes—that I was led to believe that fracture of the process takes place only occasionally, and that one should be circumspect in diagnosing such a condition.

Arthritis of the spine, while not an anomaly, is of great interest and importance when and wherever injury or pseudo-injury is complained of. There is so much confusion regarding symptomatology, pathology and roentgenology in this particular disease that hardly any two students of the subject coincide. In those types of arthritis in which there is "lipping" and spur formation, we are dealing generally with chronological age in conjunction with postural and occupational changes. Somewhere—some time—there must have been an irritative process, not necessarily infective, perhaps, to form new bone. Dr. E. H. Skinner says:

> These spur formations upon the lumbar body which occur as age goes on are productive changes resulting from the crystallization of the lines of force. These crusty formations at the vertebral margins are simply an effort on the part of nature to fix that portion of the spine so it can work harder and do more. It must have support.

Nevertheless, this class of cases with spur formation and lipping on the edges of the vertebrae are the most obstinate of all back conditions when injury is alleged.

James P. Kerby is of the opinion that all persons of stocky build, after 45 years of age, show spur formations and that practically all, including the slender individual, will show spur formations after 55 years of age. Spur formation is infrequent before 35 years of age and I have encountered only a few cases. However, my experience with the arthritic patients early in this series of spines was extremely discouraging, every one of them developing lumbago in some form within a few weeks after they went to work and on the slightest excuse of injury. Just why lumbago occurs more frequently in these cases than in other forms of arthritis I do not know. It is entirely possible that calcification of tendons attaching to these spurs occurs more frequently than we imagine.

Recently, Doub has been able to visualize calcification of the iliolumbar ligaments on both sides of the vertebra in their entire length in a series of seventeen cases. With improvement in technic, films and experience, it is believable that before long many other calcified ligaments, tendons and tendon insertions may be brought to light. If this can be accomplished, I feel sure that many obscure lumbagos may be explained.

A very frequent anomaly seen is incomplete fusion of the lamina of the vertebrae. This may occur anywhere from the cervical spine to the sacrum and may involve more than one vertebra, although the sacral and lumbar regions are most frequently affected. The cleft may be small, the spina bifida occulta, or wide, and associated with extension of the membranes and sometimes the cord. The size of the defect may not be in any proportion to the symptoms that may develop. Occasionally such symptoms as reflex disturbances, asymmetry of the muscles, disturbances of sphincter control, motor sensory manifestations, incontinence and trophic ulcers are sometimes ascribed to this condition.

Goldthwait and Willis point out that when this anomaly occurs there is a potentially weak back because of the decreased bone attachments for the ligaments that strengthen and hold the vertebrae in position. Clinical manifestations, however, do not accompany most cases of spina bifida occulta, and the individual pursues the even tenor of his way until a contusion or lumbar pain, a roentgenogram and a lawyer produce a chain of symptoms which are alleviated only by greenback plasters, after which prompt recovery is the rule.

Cervical rib is also a comparatively frequent anomaly. It is the proliferation or growth of the seventh cervical transverse process. It may be any length from the normal transverse process, occasionally being long enough to articulate with the first rib or, if short, connected by cartilage to the first rib. The length of the rib has no significant effect on the severity of the symptoms. Symptoms usually occur after traumatism or infection and appear after ossification is nearly or quite completed. If symptoms do exist they usually subside with the removal of the rib.

True back sprain is a frequent industrial injury and is usually due to a ruptured muscle, tendon or tendon sheath, sometimes accompanied by considerable hemorrhage, which encysts under the dense fascia. It is extremely rare to observe any pathologic condition of the bone in these cases, and, unless complicated by one or more of the various anomalies, the condition is easy of diagnosis. Occasionally, one of the many tendon insertions is pulled loose with a small scale of bone attached. This condition is easily recognized and recovery usually takes place readily.

Sprains and contusions of the back, whether accompanied by pathologic conditions of the bone or by one or more of the anomalies mentioned, have become one of the chief liabilities of industry and a source of enormous expense and loss of time. A significant fact presents itself in a large majority of these cases, however: symptoms generally persist as long as a hope for compensation exists, or compensation is regularly paid, but disappear magically on a lump sum settlement. This has happened so frequently in the last few years that some means of combating these pseudospine injuries without pathologic manifestations seems necessary. Two pertinent questions have been presented:

1. Do persons with anomalies of the spine suffer injury of the spine oftener than those with normal spines?

2. Granted that persons who are injured have anomalies of the spine, does it take a longer period of time for these persons to make a complete recovery?

During the last three years we have been roentgenographing the entire spinal column of all applicants for positions on the Belt Railway Company of Chicago, which is a switching company operating 22 miles of main line in Chicago and 400 miles of switch track. It owns and operates the largest and highest hump in the United States, which is situated in the middle of a yard 5½ miles long. Cars are switched over this hump both ways and the switches are electrically operated from a central tower. This yard operates twenty-four hours a day. The railway handles over this hump from 3,000 to 5,000 cars in every twenty-four hours. The Belt Railway employs 550 switchmen and eighty-eight engines on the property. Cars are switched over this hump at a very high velocity, and at times a speed of 60 miles an hour down the incline is acquired. On account of the volume of business, inspection of cars is not always what it should be and consequently there are a large number of accidents. Men are thrown to the ground from the tops of speeding cars in collision almost every day.

The number of back injuries is very high in proportion to the number of men employed. On account of switchmen being birds of passage, as a rule the turnover is very large, about 500 men a year being employed as switchmen. A very rigid and severe physical examination is given to each applicant for employment. If he passes the physical examination a serial number, in indelible ink, is placed in the scapular region and he is sent to the hospital for examination. This number on the scapular region must correspond to the number on the slip sent to Dr. Cushway. These men are then allowed to go to work if no abnormality is found in the x-ray film that would interfere with their employment.

During the three years in which we have been following this method of examining the spines of men entering the railroad service, we have seen a total of nearly 1,000 cases. The number of men showing variations and anomalies was almost 50 per cent.

In 1925 there were forty-seven employees with back injuries of a greater or less degree who lost 1,386 days' working time. I am unable to state the amount of money expended to satisfy these men in settlement. Of the 735 men who showed anomalies of the spine, only twelve have to date suffered an injured back.

In 1924 the average number of accidents per 10,000 cars was 13.9 per cent; hump accidents, 7.8 per cent.

In 1925 the average number of accidents per 10,000 cars was 10.1 per cent; hump accidents, 4.4. per cent.

In 1926, for the first nine months, the number of accidents averaged 8.7 per cent; hump accidents, 4.4 per cent.

In 1927 the percentage of accidents was only 1.4 per cent.

CONCLUSIONS

I realize that there are many other factors entering into the reduction of accidents besides the roentgenologic work which we are doing. Nevertheless, it is my firm opinion that the roentgen examinations of the new employees' backs has considerable to do with the cutting down of the accident percentage.

When I commenced taking this series of spinal roentgenograms, I planned to let any man showing an anatomic variation or an anomaly go to work, provided he was in good health otherwise, and physically strong and apparently able to do the work he was assigned to,

in order to discover if possible whether these conditions were conducive to injury or, when injury had occurred, whether the anomalies played a part in, or delayed, recovery. Many of these men have been injured—approximately 40 to 50 per cent—and, strange to say, not an anomaly nor an anatomic variation participated in any injury. In not a back injury has recovery been delayed more than four weeks, and in three years we have had only two litigations because of back injury, as compared with the previous number of forty-seven in one year.

Sacralization of the transverse process has not proved to be a hazard in any of the cases. No claim has ever been made by any of these men because of pain in the back. Their work is hard. They are of necessity trained athletes. Many of them have had severe injuries. Not one, however, has made a complaint with reference to the back.

Spina bifida occulta is rather common among these men. Several sustained severe contusions of the lower back. One fell from the top of a car, estimated to have been speeding down the incline at 60 miles an hour. He fell on his back, the lumbar region striking the rail of the opposite track. At the hospital he had a large hematoma over the entire lumbar region at least 8 inches in diameter, and a roentgenogram was made immediately. The spina bifida occulta was in the same condition as when the original x-ray examination was made and he was back at work in three weeks. The others had slight injuries and were off only a few days. Our experience has been that spina bifida occulta is not hazardous.

Arthritis, lipping and spur formation seem to be certain indications that the individual will work only a short time until some sudden strain, as the tightening of a brake, will produce a lumbago.

There were three patients with spondylolistheses. All have had minor accidents without reference to lumbar pain. All three are strong athletic men and certainly did not acquire the condition through accident. So far as I can see they must have had the disease from early youth.

A general summary of practically 1,000 symptomless spines shows approximately 44 per cent of anomalies and anatomic variations, spina bifida occulta being the most common variation noted, and sacralized transverse processes next in frequency. With the exception of spines showing lipping or spur formation, there does not seem to be any lengthened disability or any increased tendency to injury over the normal.

201 West Sixty-Third Street.

Loss of Weight in Sprue and Pernicious Anemia.—It is an undoubted fact that a large majority of sprue patients lose weight, some to a remarkable extent, while those suffering from pernicious anemia exhibit little or no wasting, especially of the subcutaneous fat. Numerous observers, including Bramwell and Wood, report loss of weight as a striking feature of sprue. Wood cites two cases in which the patients had lost 75 and 100 pounds, respectively. On the other hand, in 1,200 cases of pernicious anemia collected from the literature Cabot found that only 39 per cent exhibited any considerable loss of weight and even in these instances the subcutaneous adipose tissue was relatively well preserved.—Serra, Americo: The Relation of Sprue to Pernicious Anemia, *Am. J. Trop. Med.*, January, 1922.

ROUTINE EXAMINATION OF THE SPINE FOR INDUSTRIAL EMPLOYEES *

B. C. CUSHWAY, M.D.
AND
R. J. MAIER, M.D.
CHICAGO

These studies were undertaken with the idea of determining the percentages of anomalies present and establishing a standard that might be of some assistance in diagnosis and in the granting of just compensation in injuries to the spine; also determining, if possible, whether or not these variations are indications of a weak vertebral column that is especially liable to injury. If such a determination could be made, these studies would be of great assistance in properly placing employees with spinal anomalies in positions in which injury is not liable to occur.

During suits for damages in alleged injuries to the spine, the common questions asked are "Can you, from this x-ray film, give the approximate date on which the injury occurred?" or "Could the injury shown have occurred previous to the alleged injury?" As answers to such questions are impossible in most cases, the desirability of making films of the vertebral column of applicants for positions in which injury to the back is a rather common occurrence suggested itself to us.

Fig. 1.—Spina bifida occulta.

Fig. 2.—Cervical rib.

We have also been called as witnesses in medicolegal cases in which deviation from the normal, as shown by the roentgenogram, could have been the result of congenital anomalies, developmental abnormalities, postural changes or injury previous to the alleged injury.

We found it very difficult at first to differentiate the normal from the abnormal. George[1] has fashioned what he calls a normal vertebra by making a composite of between seventy and a hundred vertebrae, thereby establishing an average. In comparing our series with this average we found many that approximated it though none that were identical. Each spine is characteristic of the individual, and he may be identified by a roentgenogram of the spine just as definitely as by a photograph of the face or by finger prints.

* Read before the Section on Radiology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 13, 1924.

1. George, A. W.: Kansas City Clinical Society, Quart. Bull. (Oct.) 1922.

We have found few variations in the cervical or dorsal region; by far the greater percentage of variations occurs in the lumbar and sacral region, with variations in the lumbosacral region predominating. Many of these variations may have only scientific value, as they could not possibly have any bearing on the well being of the individual. Others have been pointed out as producing a potentially weak spine, one in which certain strains or injuries are liable to produce disabling symptoms, while still others have been mistaken for the results of injury or pointed out in the evidence to the jury as the direct result of the alleged injury. Again, we have found in a number of cases evidence of previous injuries which, if examined after an injury and presented before a jury or compensation board, would warrant the granting of a large compensation although the patient at the time of employment did not complain of any symptoms and denied any injury, and physical examination was negative. During our routine examination of the spine we have also encountered tuberculosis of the lung, which was not revealed by the physical examination and of which the patient was unaware. These are strong arguments for a routine examination of this type before employment.

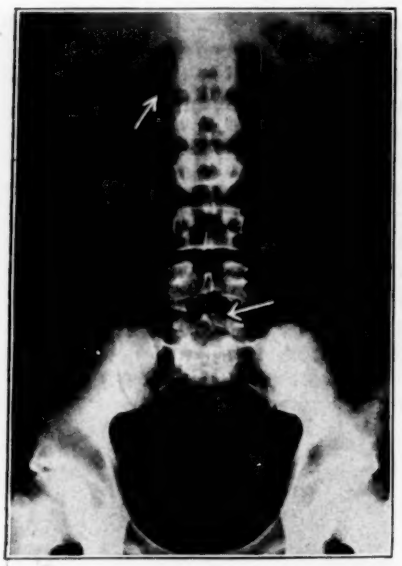

Fig. 3.—Rudimentary lumbar rib and spina bifida occulta.

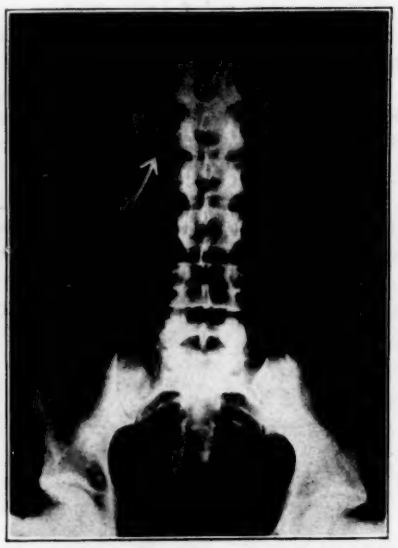

Fig. 4.—Rudimentary lumbar rib simulating fracture.

This paper is a study of the anomalies, developmental abnormalities, postural changes and evidences of previous injury in 931 men with symptomless spines who applied for positions as switchmen and firemen on the Belt Railroad, Chicago. All these men had passed a rigid preliminary physical examination without visible anatomic variations or disturbance in function.

We have been surprised at the number of abnormalities found in the symptomless spine. As this study is to be continued, our percentages may change somewhat as the series grows and some new anomalies may be added that are rare and have as yet not occurred in this series. We have now examined 931 patients, of whom 414 had a total of 510 anomalies and abnormalities. One patient was blessed with four. For our purposes we have classified the abnormalities and anomalies into the following divisions:

1. Congenital anomalies:
   - (*a*) Supernumerary ribs.
   - (*b*) Supernumerary vertebrae.
   - (*c*) Malformations of the vertebrae or their transverse processes.
2. Proliferative changes:
   - (*a*) Chronological or postural changes.
   - (*b*) Changes due to injury in which fracture is not present.
   - (*c*) Marie Strümpell type of spine.
3. Injuries:
   - (*a*) Fractures of the body.
   - (*b*) Fractures of the lamina.
   - (*c*) Fractures of the transverse processes.
   - (*d*) Fractures of the spinous processes.
   - (*e*) Dislocations and spondylolisthesis.

Spina bifida occulta was the most frequent of the congenital anomalies encountered, occurring 161 times in the 931 cases and varying from a mere line through the spinous process of the fifth lumbar or first sacral segment to complete absence of the spine and arch of the fifth and all of the sacral segments. This anomaly is the result of the faulty development of the vertebral arch. The vertebral bow begins to chondrify on each side of the notochord and forms the lateral portion of the cartilaginous vertebral arch, the extremities of which usually unite dorsally about the fourth month of fetal life. If, from defective development, this union fails to occur, some degree of spina bifida is the result.

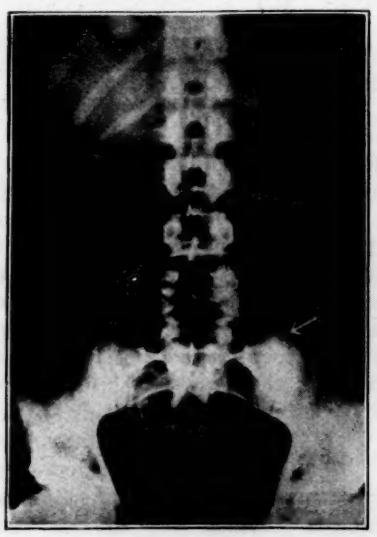

Fig. 5.—Complete sacralization of the fifth lumbar vertebra.

Fig. 6.—Thirteen dorsal vertebrae; thirteen ribs.

Supernumerary ribs occurred in eighty-four cases. Eighty-one were attached to the first lumbar vertebra on one or both sides and three were attached to the seventh cervical vertebra. The frequency with which this anomaly is encountered might be expected if the serial homologies of the vertebrae are considered. All of the segments of the vertebral column possess some characteristics in common, the various vertebrae under-

going certain modifications according to the region in which they are found. We find the transverse process in the cervical region made up of two elements, the true transverse process and, anterior to this, a costal element uniting with it laterally to form the transverse foramen. In the dorsal region this costal element becomes the head, neck and tubercle of the rib. In the lumbar region the costal element becomes the transverse process and the true transverse process is known as the accessory tubercle. It is easy to see how nonunion or overdevelopment of this costal element might produce a rib either in the cervical or in the lumbar region. Especially is this liable to occur in the vertebrae next to the dorsal vertebrae, the seventh cervical and the first lumbar. The gorilla and the chimpanzee normally have this thirteenth rib. In five cases we have found thirteen true ribs and vertebrae, with the normal number of vertebrae in the rest of the column.

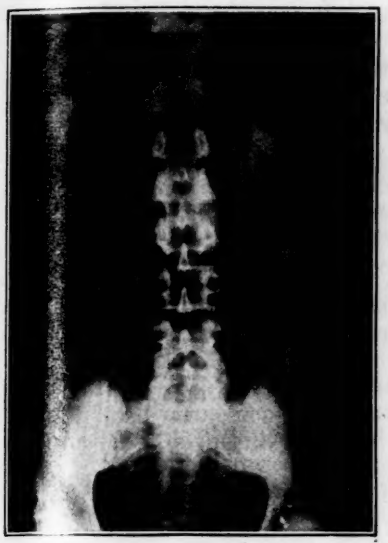

Fig. 7.—Six lumbar vertebrae.

Fig. 8.—Four lumbar vertebrae.

In fifty cases some degree of sacralization of the transverse processes of the fifth lumbar vertebra occurred. This varied from impaction of the transverse process on the wing of the sacrum with the formation of a bursa on only one side to complete fusion of both transverse processes of the fifth lumbar vertebra with the sacrum. It is interesting to note that Rosenberg [2] considers that the twenty-sixth, twenty-seventh and twenty-eighth vertebrae are the primitive sacral segments and that the sacral characteristics of the twenty-fifth vertebra are only secondarily acquired. He thus supposes that during development there is a headward shifting of the sacrum and pelvic girdle with a consequent reduction or shortening of the presacral portion of the column. Whether or not this is true, the fact remains that variations in the lumbosacral region are extremely common, six lumbar vertebrae, partial or incomplete sacralization of the fifth lumbar vertebra, and incomplete union of the first and second sacral segments being among the chief variations.

2. Rosenberg, quoted in Cunningham's Anatomy, p. 276.

Supernumerary vertebrae or the absence of one or more vertebral segments are not uncommon. The number of presacral or movable vertebrae is normally twenty-four (seven cervical, twelve dorsal and five lumbar). This number may be increased by the intercalation of a segment in the thoracic or lumbar region without any alteration in the number of sacral or coccygeal elements; such an arrangement presupposes faulty segmentation of the column. On the other hand, the total number may remain the same but there may be a variation in the number found in the different regions because of the subtraction from one region and addition to another. Similarly, the number of presacral segments may be increased by the withdrawal of one sacral segment or decreased by the union of the last lumbar vertebra with the sacrum. In our series supernumerary vertebrae or the complete absence of one or more vertebral segments occurred in forty-six cases. These cases do not include those in which the number was increased by the withdrawal of one sacral segment or decreased by the union of the last lumbar vertebra with the sacrum. In all these cases the number of vertebrae in the other regions of the column was normal.

Deformities of the coccyx, incomplete union of the first and second sacral segments, deformity of the transverse process, deformity of the sacrum, and incomplete union of the lamina and articular process follow in the order given. There is here a total of 328 cases of so-called potentially weak backs, and not one patient has lost a day's work from injury or strain to the lower back region in which the anomalies could be pointed to as being an etiologic factor. Up to the present time we have not been able to confirm the statement that these anomalies actually do produce a weak back —one that is not able to stand up under severe strain and injury.

Fig. 9.—Angulation of coccyx.

Fig. 10.—Congenital deformity of the fifth lumbar vertebra and sacrum.

Curvature that was not the result of pathologic changes occurred in eighty-one cases. This condition is so common that in our opinion it is the result of posture and habit except when due to congenital

deformity of the body of the vertebrae or sacrum, as occurred in seven of our cases.

Proliferative changes occurred in sixty-three cases without symptoms. With a few exceptions the patients were nearing, or had already passed, the age of 40. This strengthens our belief in George's contention that these are chronological changes occurring rarely before the age of 40 but commonly after that age and are the natural efforts of nature to strengthen the spine along the lines of greatest stress. When the changes are localized or occur in early life, infection, toxins and injuries may have some bearing on this proliferation of normal bone around the bodies of the vertebrae. As Dr. Bohart has pointed out, these patients early develop a painful back. Kümmell's disease and the Marie-Strümpell type of spine have not been encountered in this series, as these are symptomless spines and such conditions usually produce symptoms or at least limited function.

Fig. 11.—Congenital deformity of third lumbar vertebra.

Fig. 12.—Spondylolisthesis.

Spinal Anomalies

	Number
Spina bifida occulta	161
Scoliosis	81
Lumbar ribs	81
Proliferative changes	63
Sacralization	50
Deformity of the coccyx	32
Six lumbar vertebrae	25
Incomplete union of first and second sacral segments	21
Deformity of transverse process	14
Eleven dorsal vertebrae; eleven ribs	10
Four lumbar vertebrae	6
Thirteen dorsal vertebrae; thirteen ribs	5
Congenital deformity of sacrum	4
Variation of intervertebral disk	3
Cervical ribs	3
Congenital deformity of body of vertebrae	3
Incomplete union of lamina and articular process	2
Fractured ribs	15
Tuberculosis of the lungs	12
Fractured pelvis	4
Fractured vertebrae	5
Spondylolisthesis	3
Tuberculosis of vertebrae	1
Exostosis of rib	1
Total variations	607
Total cases showing variations	414
Total congenital and developmental anomalies	510
Total number of cases	931

Calcification of the iliolumbar ligament has been encountered in quite a number of our cases. We are not prepared at this time to give definite statistics on the frequency of its occurrence. As with proliferative changes, it is most often found in the fourth decade of life.

Aside from these anatomic variations that may have some bearing on the ability of the employee to withstand strain and injury, we have found evidence of old fractures in twenty-four cases, and in fifty-three cases we have found deformities that might easily be mistaken for the results of injury. If these patients had been examined after an injury and presented to a jury or compensation board, the evidence would have warranted the granting of a large compensation although the patients at the time of employment did not complain of any symptoms, there was no history of any previous injury, and physical examination was negative.

The accompanying table gives a complete list of the anomalies and variations noted in our series of patients.

CONCLUSIONS

1. Anomalies of the vertebrae are very common and do not necessarily cause painful backs.
2. Roentgenologic study of the vertebral column should be made in all employees in industries in which injury to the spine is common.
3. This form of examination will prevent the employment of those unfit for certain types of labor.
4. Just compensation to the injured will be certain, as this form of examination will definitely fix the date of injury within the term of employment.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. BOHART AND DRS. CUSHWAY AND MAIER

DR. S. B. CHILDS, Denver: Anomalies in spinal structure have been known for centuries, but it is only because of the x-rays that the roentgenologist is in a position not only to demonstrate the variety of these anomalies, but also to give statistics such as have been presented to us today on their common occurrence in symptomless spines. It is not surprising that defects are found in the structure of the spine after ossification has been completed, but the report of Drs. Cushway and Maier surprises me in that of 931 men with symptomless spines, 510 presented congenital and developmental anomalies. That the greatest number of these defects, especially spina bifida occulta, are found in the lumbosacral region is probably due to the fact that this is the last part of the neural arch to close. Dr. Bohart reports the existence of sacralization in fifty out of 735 industrial patients examined, and despite the fact that severe injuries had occurred in many of them, he states that not one had made complaint with reference to the back. This is a very instructive fact. We have all doubtless noticed sacralization in many cases in which symptoms were not referred to the back. However, in my observation of several cases presenting this anomaly, I found that, whereas, prior to an injury to the lower spine symptoms had not been present, subsequently, although the injury may have been only a severe sprain, it was alleged that symptoms of low back pain and disability had been present for a long time, and in several of these cases financial remuneration for disability was not a factor. The exact cause for this disability is difficult to explain. It is logical to infer that it may be produced by an inflamed bursa, as suggested, and possibly more logical to ascribe the pain to the extratension in some of the ligaments in this locality. In nonsymmetrical sacralization there is likely to be faulty weight bearing at the lumbosacral junction, which fact may account

for the disability in some cases. Chronological and occupational changes in the spine should be recognized as distinct entities in their formation from similar appearances caused by an arthritis due to infection. Arthritis with bone changes including spur formations is the result of an inflammatory process and the symptoms are aggravated by injuries to the back; in industrial cases disability resulting from such aggravation of symptoms is subject to remuneration. Incapacity for work from spur formation occasionally depends on certain positions of the body assumed in such work. Deductions, such as Dr. Bohart has made, suggest that corporations will sooner or later include in their physical examinations the routine roentgen examination of the spine of all applicants for hazardous occupations.

DR. LEON T. LEWALD, New York: Drs. Cushway and Maier mentioned that Dr. George is trying to produce a composite of a vertebra. I do not approve of that method of attacking a problem. My idea is to record every possible anomaly and not only that, I am not going to speak of anomalies any more, but of normal variations, because I think that persons having these peculiarities of development are in a way just as normal as those who have the standard pattern. I know it is a mistake to give the patient the idea that he is entirely different from everybody else and that he is more liable to suffer disability, so I should like to call these conditions normal variations, particularly the ones that keep popping up at extreme frequencies, such as the absence or failure to close of the spinal processes of the fifth lumbar and first sacral segment. The other point I should like to make is that one should always try to see whether there has been sufficient trauma to produce an alleged injury, not relying on the simple statement that a certain trauma of considerable violence was exerted, but ascertaining whether that trauma was directed in such a way that it could actually produce the particular lesion. Dr. Bohart's statement of the reduction in the number of cases of litigation is a striking example of what can be done along this line. Does he let these men know now that they have these anomalies or old lesions? I think it is wise not to let them know that they have these conditions, as they might seek a job somewhere else and get compensation.

DR. EBEN J. CAREY, Milwaukee: I found out more about the spine today than I have ever known, in spite of the fact that I have been teaching students for fifteen years, and that is because the authors have been studying anatomy in the living patient by means of the roentgen ray and other methods rather than according to the theoretical method of anatomy that is taught. As Dr. LeWald said, we must learn the normal limits of variation, and, as Dr. Bohart said, the spine is as characteristic of an individual as his face. It can serve as a means of identification if we know what the limits of variation are. As Hunter mentioned 150 years ago, the entire bony framework of the body was laid down in a mold of musculature. We learn more about the spine if we realize that the bones, muscles and joints form a triple alliance system; that one cannot affect one without affecting the other; that if one upsets the balance in the relationship of one, the balance of the relationship is upset in all three, and, as a consequence, the spine, although it is considered to be a functional support or pillar of support for the entire trunk, with the arches protecting the spinal cord by forming an encasement, is molded by the muscles in action—those tissues that are undergoing rapid proliferation in youth. Normal variations, even variations, enlarge, and those variations of limits we should learn.

DR. B. C. CUSHWAY, Chicago: Dr. LeWald spoke about the composite vertebra approaching the normal. I think the point is very well taken. These developmental anomalies are normal for that type of person. Our purpose in undertaking this study was to accumulate sufficient material that we might have a standard for use in forming opinions in cases of litigation. It will probably be necessary to pursue these studies in a different class of people in order to have a complete review of the subject. These studies were made on the working class. It would be well if we could have a series of studies of this type made on those engaged in sedentary occupations. We might then compare and probably secure considerable additional information.

Fig. 15.—Fracture of vertebra.

DR. W. H. BOHART, Chicago: These men are not told of the condition of their backs. I am afraid that if some of them knew, they would never work at all. I too feel that the conditions of these backs is not pathologic. Each individual has his own developmental variations. Dr. Cushway is now trying to locate more calcified ligaments. Since we saw Dr. Doub's technic and his work, we have become quite interested, and he is already getting some calcified ligaments. I feel sure that as time progresses and we see more of these men, we will find a larger number of calcified ligaments, and these calcified tendons and calcified ligaments probably in the majority of cases are the cause of the lumbagos that we see. Of course, these men whom we are examining are all young men, and that is the reason we do not find any Marie Strümpell types of backs. It is also the reason that we see few arthritic spines. These men are young men who are in full vigor and are hard workers and very athletic. I agree with Dr. Cushway that a comparative study would be of value. If we could only persuade 100 office men, and maybe 100 women, to come to us for roentgen-ray examinations, we might obtain some data for comparison.

Fig. 13.—Proliferative changes.

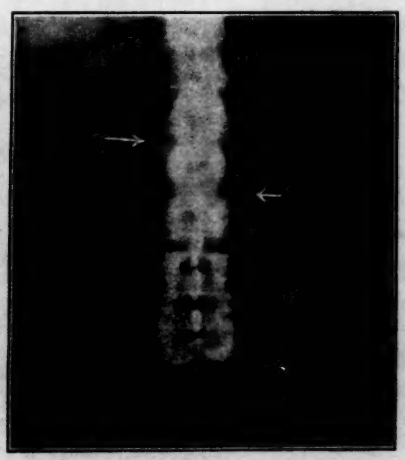

Fig. 14.—Proliferative changes.

Focal Infection and Arthritis.—Billings and Rosenow were pioneers in calling attention to the dangers of chronic foci of infection as causative factors in arthritis. It was demonstrated in the latter's laboratory at the Mayo Clinic, by Laura Moench, that micro-organisms cultured from the glandular structures of the cervical mucosa of patients having arthritis could cause joint lesions in inoculated rabbits. It was further shown that these bacteria were identical with the anaerobic streptococci usually found in other infective foci in women under treatment for arthritis.—Phaneuf, L. E.: The Benign Lesions of the Uterine Cervix and Their Treatment, *New England J. Med.*, Dec. 20, 1928.

HEART BLOCK AND UREMIA

REPORT OF TWO CASES *

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The presence of a case of heart block in the medical clinic usually evokes more than ordinary interest. A heart with a ventricle beating at a rate that may be only one-half or one-third its normal rate and often efficiently meeting the demands of the body is but one of the many examples of the provision nature has made to care for contingencies. That a patient with heart block may successfully pass through a disease which is frequently fatal is worthy of comment.

A patient suffering from uremia may develop heart block, and uremia may develop in one who has permanent heart block. Heart block may be temporary or permanent. The poisons of rheumatic fever, chorea, tonsillitis, diphtheria, pneumonia, syphilis, scarlet fever and septic infections may inaugurate heart block. The toxemia of chronic infections and metabolic disturbances, such as chronic interstitial nephritis and diabetes mellitus, may be an etiologic factor.[1] These poisons act similarly to full doses of digitalis by interfering with the conduction of the auriculoventricular impulse.

Arteriosclerosis plays an important rôle in the etiology of heart block. If the arteriosclerotic process involves the heart muscle, it is more susceptible than the normal heart to the effects of poisons capable of producing block. Less frequently the injury is confined to the conduction system of the heart.

Wood and White [2] and Viko and White [3] have noted the changes that occur in the conduction system of the heart in patients with nephritis and uremia.

The prognosis in heart block is dependent on the efficiency of the heart muscle, which often is severely impaired before the onset of the block.

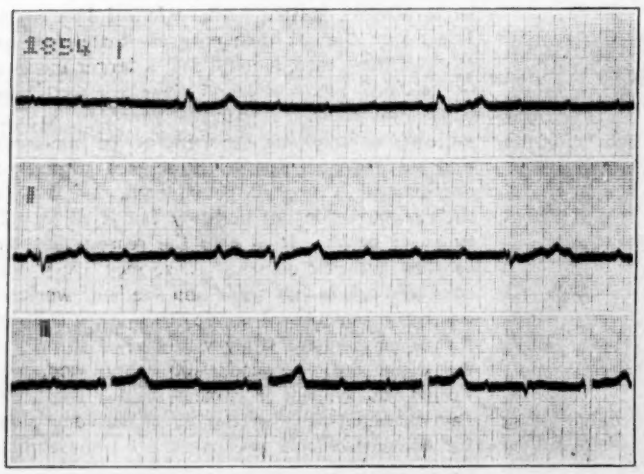

Fig. 1 (case 1).—Complete heart block.

CASE 1.—*Acute uremia, complicated by heart block with temporary recovery from both conditions and later death from uremia.*

L. R., aged 77, entered the hospital for removal of a hypertrophied prostate gland. One week prior to admission he had developed retention of urine which required catheterization. Otherwise there was nothing worthy of comment in his past history.

On admission to the hospital the patient was enjoying fair health except for his catheter life, which caused great discomfort.

The physical examination did not show anything abnormal, except for a marked degree of arteriosclerosis. The left border of cardiac dulness extended 13.5 cm. to the left of the mid-

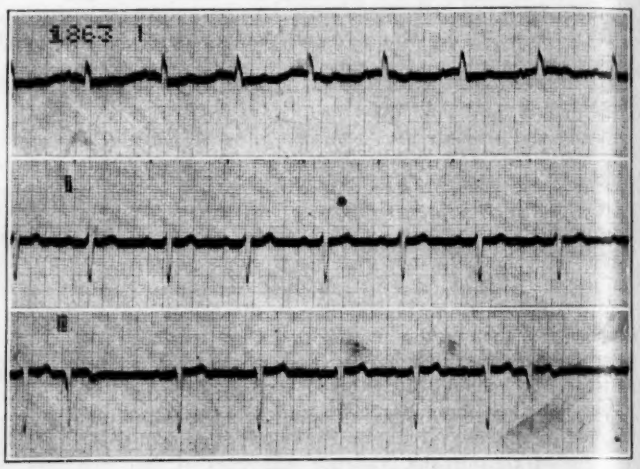

Fig. 2 (case 1).—Normal sinus rhythm in leads I and II and ventricular premature contractions in lead III. P-R interval abnormally prolonged.

sternal line in the fifth interspace. A systolic murmur was present in the aortic and the mitral areas. No symptoms of decompensation were present. The pulse rate on admission was 100 a minute; the systolic blood pressure was 130 mm. of mercury and the diastolic, 65. The specific gravity of the urine varied from 1.002 to 1.014. The phenolsulphonphthalein test was 20 per cent for the first hour and 20 per cent for the second hour. Chemical examination of the blood showed nonprotein nitrogen, 37.20 mg.; urea, 16.66 mg. and creatinine, 1.32 mg. per hundred cubic centimeters.

The patient was kept in the hospital two weeks before operation was performed. During this period the pulse rate varied from 52 to 80 a minute. Immediately after the operation the pulse rate fell from 70 to 36 a minute, although the patient did not have any symptoms to which the slow pulse rate could be ascribed. Within twenty-four hours the pulse rate rose to 70 a minute and fluctuated between this rate and 50 a minute for six days, when it suddenly declined to 30. Accompanying this fall in pulse rate, the patient complained of weakness and syncopal attacks and six hours later became stuporous. Electrocardiographic studies revealed complete heart block (fig. 1). The blood urea, at this time, had increased to 35.32 mg. of urea per hundred cubic centimeters of blood. The urinary output could not be definitely estimated on account of suprapubic drainage but it was lessened at this time.

Measures to promote elimination, such as hypodermoclysis and enteroclysis of salt solution, were instituted, and six days later the pulse rate rose to 70 a minute. Electrocardiograms made twelve days after the operation showed the reestablishment of the normal rhythm, with prolonged P-R intervals and branch bundle block (fig. 2). Two days after this electrocardiogram was made the blood urea was 18.22 mg. per hundred cubic centimeters of blood.

The patient's physical condition improved daily until forty-one days after the operation, when it suddenly failed again, accompanied by drowsiness, syncopal attacks and dyspnea, ending in death from uremia on the forty-seventh day after operation, with a pulse rate varying from 18 to 44 a minute in the last six days. The chemical examination of the blood on the forty-third day after operation showed 66.20 mg. of nonprotein nitrogen, 35.24 mg. of urea and 2.45 mg. of creatinine. During

* From the Department of Medicine, Jefferson Medical College and Hospital.

1. Mohler, H. K.: Adams-Stokes' Syndrome, Heart Block, in Association with Diabetes Mellitus, J. A. M. A. **81**: 1342 (Oct. 20) 1923.
2. Wood, J. E., Jr., and White, P. D.: The Electrocardiogram in Uremia and Severe Chronic Nephritis with Nitrogen Retention, Am. J. M. Sc. **169**: 76 (Jan.) 1925.
3. Viko, L. E., and White, P. D.: Observations and Important Disorders of the Heart Beat, M. Clin. North America **5**: 1479 (March) 1922.

each attack of sudden slowing of the pulse, the nonprotein content of the blood rose above that present on admission.

The blood pressure during the patient's illness varied within a range of 10 mm. above or below that on admission to the hospital.

This patient had arteriosclerotic changes in the cardiovascular renal system, and the electrocardiogram and pulse rate showed that rises in the nonprotein nitrogen content of the blood were accompanied by slowing of the heart due to block.

The heart block changed to normal rhythm with the return toward normal of the nonprotein nitrogen. Changes in the conduction of the auriculoventricular impulse were dependent on the efficiency of kidney function, as shown by the improvement in the general condition of the patient and in the electrocardiogram. Finally the kidneys failed, complete auriculoventricular dissociation returned, and uremia resulted in death. The heart block developed as a result of the toxic effect of the uremic poison on an already injured conduction system of the heart by arteriosclerosis.

CASE 2.—*Complete heart block developing acute uremia with complete recovery from the latter condition.*

A man, aged 64, was seized with convulsions, Dec. 29, 1924, and brought to the Jefferson Hospital. His family history did not show anything of interest. He had had an attack of diphtheria at the age of 16 years. His health had been good until five years before. He had had attacks of vertigo and often felt nauseated, especially when the bowels did not act freely. For thirty years he had known that he had a slow pulse. His family physician stated that since 1919 his systolic blood pressure had varied from 200 to 220, and his pulse rate had been slow, usually from 30 to 34 a minute.

On admission to the hospital he was unconscious with convulsive seizures, and his entire body was spastic except for left sided facial palsy. His breathing was stertorous and the skin was deeply cyanosed. There was a marked distention of all superficial veins. The lungs did not show anything worthy of note except emphysema.

No shocks or thrills were palpable over the precordium. The left border of cardiac dulness extended 14 cm. to the left from the midsternal line in the fifth interspace. The aortic and

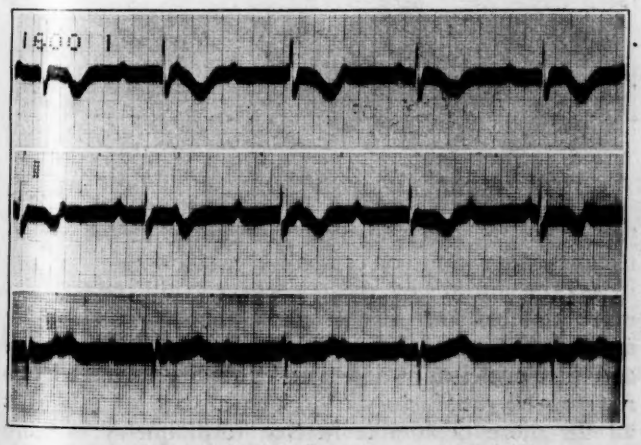

Fig. 3 (case 2).—Complete heart block.

pulmonic second sounds were accentuated. No murmurs were present.

The radial pulse was regular and the rate was 26 a minute. The blood pressure on admission was 180 systolic and 105 diastolic.

The examination of the abdomen did not reveal anything worthy of note.

The reflexes were increased. The Babinski sign and ankle clonus were not obtained. All superficial arteries showed marked thickening.

On admission a catheter was passed into the bladder but no urine was obtained. Eighteen hours later 30 cc. was obtained. The specimen contained a cloud of albumin, blood, and many hyaline and granular casts.

The chemical analysis of the blood on the day of admission showed 89.4 mg. of nonprotein nitrogen, 40.2 mg. of urea, and 2.1 mg. of creatinine.

The treatment consisted of venesection, 1,000 cc. of physiologic solution of sodium chloride given by hypodermoclysis, and a colonic irrigation of warm physiologic solution of sodium chloride.

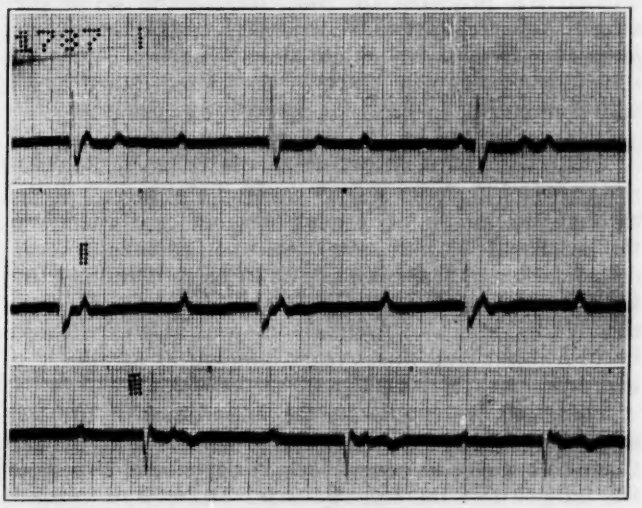

Fig. 4 (case 2).—Electrocardiogram made one year after figure 3, showing that the complete heart block continues and showing the return of the T waves to the upright position.

The pulse rate varied from 22 to 32 a minute during the patient's stay in the hospital. The systolic blood pressure declined from 180 on admission to 128 on discharge and the diastolic blood pressure varied from 106 on admission to 68 on discharge.

The electrocardiograms made while the patient was in the hospital showed complete heart block (fig. 3).

Examination of the blood, Dec. 10, 1925, one year later, showed 30.76 mg. of nonprotein nitrogen, 13.27 mg. of urea and 1.11 mg. of creatinine per hundred cubic centimeters of blood.

The condition of the urine was typical of chronic interstitial nephritis and the electrocardiogram showed complete heart block (fig. 4).

The patient returned to his business as a salesman and enjoyed the same health that he had prior to his attack until January, 1928, when he died from cancer of the rectum after an illness of eight months. He died with the slow pulse, which persisted until death. The onset of the bradycardia was not accompanied by any symptoms.

It is interesting to speculate as to the cause of the heart block. The attack of diphtheria which the patient had at the age of 16 is the probable etiologic factor, unless it was congenital. The study of this case shows that heart block may have its onset, and that it may be present for a long period, without symptoms. Patients with permanent heart block may pass safely through serious illness without changes in the pulse rate or the development of heart failure.

The most probable explanation in this case is that the diphtheria attacked and injured the conduction system of the heart without serious impairment of the function of the heart muscle and its endocardium. Gradually the injury caused by the diphtheria toxin progressed to complete auriculoventricular dissociation. The heart in the meantime adapted itself to meet the needs of the body, being able to do so because its muscle did not

suffer any great harm from the diphtheria toxin. The effect of diphtheria toxin is immediate in some cases, and possibly in others it inaugurates a lesion that is slowly progressive in character and not manifest until months later.

SUMMARY

In a patient with advanced arteriosclerosis a failure of kidney function resulted in heart block and, finally, death from uremia. The heart block developed probably as a result of the toxic action of the retained nitrogenous products of body metabolism on a previously injured auriculoventricular conduction system, improving temporarily as the kidney function improved, returning to complete block as the kidney failed again, and eventuating in death as a result of uremia.

In another patient, it may be assumed, on account of a history of bradycardia, that heart block had been present for at least thirty years. He safely passed through an attack of uremia without any change in the heart and without symptoms of impairment of cardiac function. The complete heart block continued and he was apparently none the worse for having passed through the attack of uremia. He was able to return to his work and died three years later, after an illness of eight months, from cancer of the bowel.

These studies emphasize the importance of the condition of the heart muscle in prognosis and indicate that the outlook in heart block is dependent largely on the integrity of the heart muscle.

319 South Sixteenth Street.

THE JUNIOR SCOPOMETER *

WILLIAM G. EXTON, M.D.

NEW YORK

Clinical pathology includes numerous determinations depending on measurements of color or turbidity which it has always been the established practice to make by photometry; i. e., comparison of a test sample's brightness with that of a standard. The present status of colorimetry is somewhat paradoxical because really satisfactory instruments for colorimetric work are becoming available as a result of the constant improvements in photometers of the Duboscq type made by some manufacturers just now when a decided drift toward simpler but inferior optical methods becomes strikingly evident. Undoubtedly, considerations of ease of manipulation, economy of sample, and time account for the turn to handier methods and justify some such technics on the grounds of expediency, but only, be it stressed, if the concomitant sacrifice of precision is adequately appreciated.

If the classic experiments of Richtmyer [1] and others are taken as representative of the best photometry, 0.5 per cent may be regarded as the best attainable accuracy [2] of the purely optical element of colorimetric procedure. When, as in actual practice, all of the manipulations entering into the technic of such usual colorimetric methods as the sugar tests of Folin, Benedict or Sumner are lumped together, it appears that about 4 per cent is the attainable accuracy [3] even when the determinations are made by experts under the best controlled test conditions with the most perfect available instruments. Under the conditions of routine work it would therefore seem unreasonable to expect an accuracy of even 5 per cent, and with inferior instruments or such causes of failure in photometry as unequal illumination or color difference in the fields, operating error mounts very rapidly and can easily exceed 30 per cent.

The demand for quick and simple colorimetric technics has lately led to the introduction of many based on the use of permanent standards, which usually take the form of a series of colored glasses or sealed tubes containing colored solutions. As regards the colored glasses, I have sought but have never been able to find a reputable glass technologist who would guarantee to reproduce the color of a glass. As regards colored solutions, the differences between tubes in the same series are often greater that 20 per cent, and even a superficial comparison of competing concoctions reveals such marked differences that it is necessary to consider very cautiously claims made for permanence and precision. Some of the standards offered are undoubtedly satisfactory and serviceable in the hands of critical workers who can check them, but unfortunately they seem to appeal to and find more users among smaller laboratories and individuals lacking facilities for maintaining standardization.

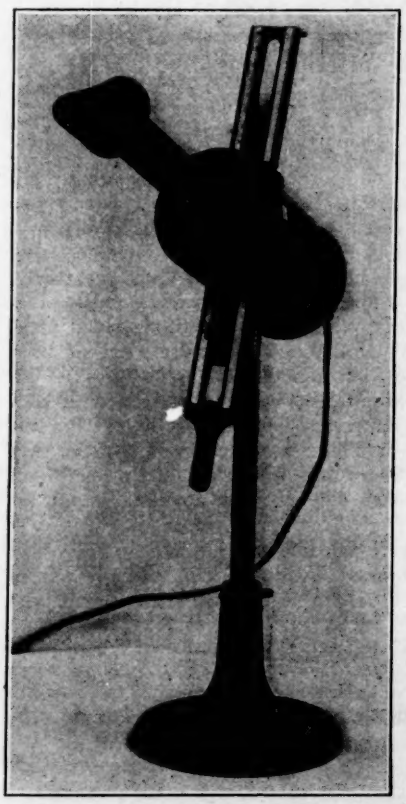

Fig. 1.—Appearance of junior scopometer.

In the case of turbidimetry little inquiry is needed to disclose the fact that, notwithstanding the numerous technics depending on turbidity measurements which have been introduced, most workers avoid them whenever possible on the grounds that "nephelometric methods are generally unpopular and subject to severe and just criticism" [4] and that "turbidity methods have not proved satisfactory." [5] Such a state of affairs is all the more deplorable in that turbidimetry is more fundamental and possesses greater potentialities than colorimetry.

In a paper on scopometry [6] which I presented at last year's meeting of this section, it was explained that an extinction or vanishing point criterion gave an optical measure of turbidity which proved more reliable and reproducible than the older and more refined and complicated methods. During the past four years this very

* From the Laboratory of the Prudential Insurance Company of America, Newark, N. J.

* Read before the Section on Pathology and Physiology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 13, 1928.

1. Richtmyer and Crittenden: J. Optic. Soc. America 4: 371-387, 1920.
2. By accuracy is meant the average deviation of a single observation from the mean.
3. Wells, P. V.: J. Lab. & Clin. Med. 13: 565-574 (March) 1928. Unpublished data of the Prudential Laboratory.
4. Maxwell, L. C.; Bischoff, Fritz; and Blatherwick, N. R.: J. Biol. Chem. 72: 51-56 (March) 1927.
5. Wells, P. V.: Chemical Reviews 3: 331-382, 1927.
6. Exton, W. G.: Arch. Path. 5: 49-65 (Jan.) 1928.

simple extinction or vanishing point criterion has been employed to measure turbidity and color in the routine work of the Prudential Laboratory, and the results obtained on more than 300,000 specimens by more than twenty technicians have led me to construct a simple instrument which I call the junior scopometer.

This little universal instrument represents an effort to avoid the dangers of complicating clinical criteria and vitiating statistical study which will inevitably result if

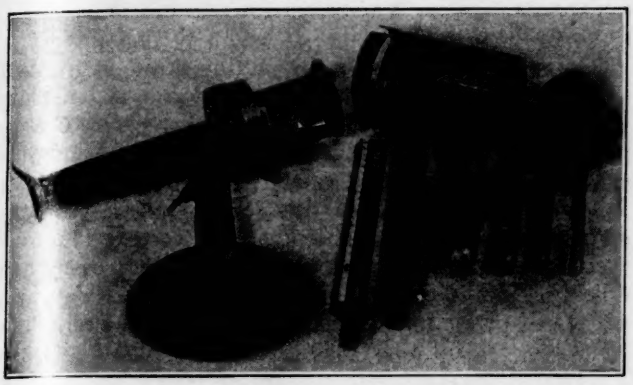

Fig. 2.—Parts of junior scopometer.

our clinical laboratories employ different standards in making the same tests, because data from different sources will not then be comparable and must be misleading. I cannot, however, overemphasize or make it too clear that my only purpose in designing the junior scopometer is to improve on inferior methods of measuring color and turbidity, such as standard tubes, and that the new instrument is not intended to compete with the best Duboscq models.

OPTICS AND CONSTRUCTION OF JUNIOR SCOPOMETER

The junior scopometer affords a novel optical criterion for measuring color and turbidity which is characterized by the complete disappearance of an image under observation. It may be referred to as an extinction or vanishing point criterion, and in principle it measures the optical density of a sample by adding increasing densities to that of the sample until a point is reached at which the density of the sample plus the density added to it causes the image of a standard target to vanish. For adding density to the sample the junior scopometer utilizes a continuously graded series of increasing densities in the form of an optical wedge having a predetermined standard slope and called neutral because it transmits equally all colors of the spectrum. By shifting the position of the wedge and visible reading, the point on the wedge scale at which the target image seen through sample and wedge vanishes and the concentration of a specimen may be directly measured.

Figure 1 shows the general appearance of the junior scopometer, and figure 2, its separate parts. From these it will be seen that there is nothing mechanical to get out of order; that all parts are easily accessible for cleaning, and that the construction is sturdy and rigid. In designing the instrument the utmost stability has been constantly aimed at and has been achieved in a remarkable and unusual degree.

The diagram (fig. 3) enables one to follow the path of light through the instrument. A cool 10 watt lamp of standard type is housed in a white chamber to diffuse the illumination so as to avoid sensitiveness to filament position. From this source the light passes through an opening in front of the chamber which holds the standard target; i. e., a platinized glass disk ground on the back and having on its mirrored front surface a 0.2 mm. wide horizontal transparent slit.

Below and in front of the target is a receptacle which automatically holds in position the sample contained in a test tube, which also serves as a biconvex lens through which the light passes to an aplanatic triplet. With the eyepiece these elements comprise a simple but efficient short focus telescopic system. The optics are designed to give as little magnification as possible (only about 2) in order to avoid all focusing troubles. From the triplet the light goes through the wedge and then on to the eye of the observer after passing in succession through filter aperture, adaptation field and eyepiece.

An observer looking through the instrument sees only the field with the target slit running across it, which varies in brightness or color according to the combination of test solution, light filter, and wedge position. As measurements are taken at the point at which the combined density of sample and wedge extinguish the target light, watching the gradual disappearance of the target in darkness at or below the visual threshold is not only

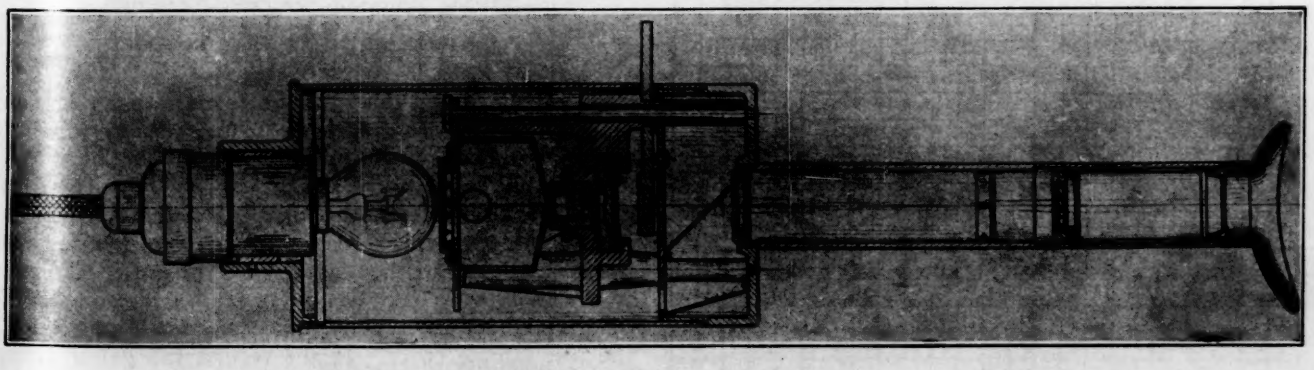

Fig. 3.—Working drawing of scopometer.

trying and tiresome but productive of unavoidable errors inherent in optical physiology. Such difficulties are completely avoided in the junior scopometer by a unique provision called the adaptation field, which controls the field brightness so that the observer sees the target disappear from an illuminated field under optimum conditions. This refinement greatly improves the extinction criterion and is secured by a white channel running from the lamp to the small white chamber situated between the end of the ocular tube and the light filter diaphragm. From the white walls of this chamber diffuse light is deflected to a transparent glass plate hung

in front of the ocular tube end. In this way, light coming through the target slit enters the eyepiece at the same time that the diffuse light from the side channel is reflected on the central target field. A compensatory effect is thus also achieved which enhances stability, because both central and adaptation fields are formed by light coming from the same source and bear a relation to one another which remains fixed even with different

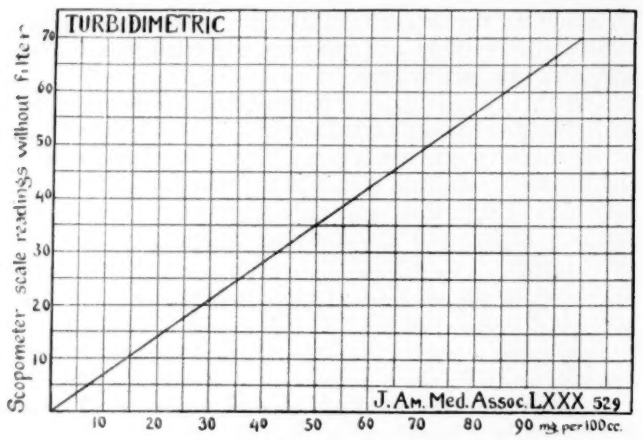

Fig. 4.—Quantitative test for protein in urine.

types of lamps or changes in the brightness of lamps due to age and current.

To Dr. Mees[7] of the Eastman Kodak Company, American scientists feel a debt of gratitude for the Wratten light filters and wedges, which are extremely useful and serve many different purposes. These consist of strips of gelatin dyed according to many and various formulas, and they are reproduced with so high a degree of precision by spectrophotometric control that renewal, if ever necessary, does not involve a change of calibration.

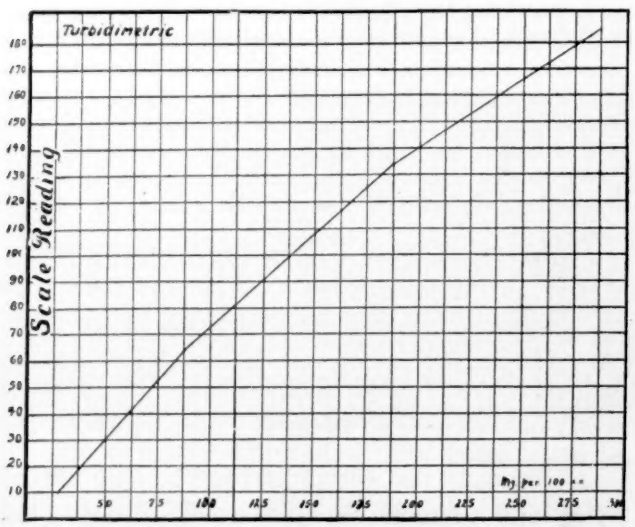

Fig. 5.—Scopometer reading in test for blood sugar by iron reduction.

The neutral wedge used in the junior scopometer allows equal transmission of all the colors of the visible spectrum, and is 160 mm. long and 15 mm. wide, with a linear slope to a density of six. It is protected by polished glass securely framed in a metal mount fitted to slide in a grooved track. By gentle pull or pressure, an observer can change the position of the wedge at will.

7. Wratten Light Filters, latest edition, Eastman Kodak Company, Rochester, N. Y.

On each side of the wedge in its mount are grooves for housing scales. Mounted permanently on the left, but adjustable, is a universal or wedge scale which reads millimeters. On the right side of the wedge is another groove for scales which can be changed at will to give direct readings of concentration for any desired test. The junior scopometer attains this adaptability by substituting for the usual comparison standards a calibration curve or table, which should be included in all descriptions of technics intended for the instrument.

OPERATION OF THE JUNIOR SCOPOMETER

The novice should begin by putting in the instrument a test tube containing clear distilled water and reading the point on the wedge scale at which the target completely vanishes. By repetition the observer finds his criterion, which becomes established when his readings fall within three points of the scale. Individuals vary somewhat in the amount of practice necessary to steady their criteria, but the majority get the knack easily and quickly. An observer's distilled water reading is a matter of prime importance because it pools and elimi-

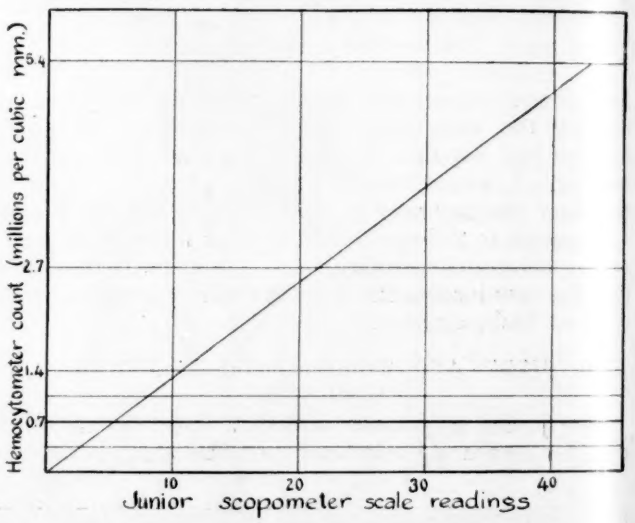

Fig. 6.—Red cell count by junior scopometer.

nates practically all the variables that can enter into an optical measurement, such as visual acuity, personal equation and differences in light or color due to changes of lamp, current, wedge and filters.

For turbidity tests the distilled water reading is always taken as the zero point; for colorimetric tests the scale reading of the reagent with the prescribed filter is used. Once a test has been calibrated, subsequent determinations are rapidly and easily made by reading the test sample twice. If the results fall within three scale divisions, the average is taken. If the readings vary more than three scale divisions, a third is made and the two closer readings are averaged. If the zero points of observer and calibration coincide, the determination is completed by picking the result in terms of concentration from the calibration. If there should be a difference between the zero points of observer and calibration, one adds or subtracts the difference before picking the concentration from the calibration.

After a little experience all of the manipulations are more quickly done than described, but they may be still further simplified by adjusting the wedge scale to the observer's distilled water or zero point reading or by using a scale which is direct reading for the particular

test, since provisions for both these conveniences are incorporated in the instrument.

Figure 4 shows the calibration curve of the test for protein used in the Prudential Laboratory, which will serve to illustrate the method of calibrating any test. It was made by precipitating a series of serum protein concentrations and plotting the scale reading against each concentration. By plotting scale readings against concentrations, any technic may be calibrated for the junior scopometer.

Figure 5 shows the calibration for Rose's [8] turbidity test for blood sugar, which requires only 0.1 cc. of blood and less manipulations than other blood sugar tests.

Figure 6 gives the scale readings of the junior scopometer plotted against photographed red cell counts.

The optics of colorimetry are, of course, quite different from those of turbidimetry but the criterion of the junior scopometer for both is the same, with the exception of the color of the target slit, which varies with the color of test solution or light filter. This does not cause any difficulties, and the colorimetric procedure is the same as the turbidimetric excepting that the reading of the reagent is taken as the zero point instead of the distilled water reading.

The new method of colorimetry [9] incorporated in the junior scopometer measures color at its greatest density, or in those wavelengths of the spectrum in which it is most absorbed, by isolating its absorption band with an appropriate light filter and measuring its density with the neutral wedge which is a part of the instrument.

Thus, red absorbs blue and blue absorbs red, and it happens that the usual colorimetric technics develop red

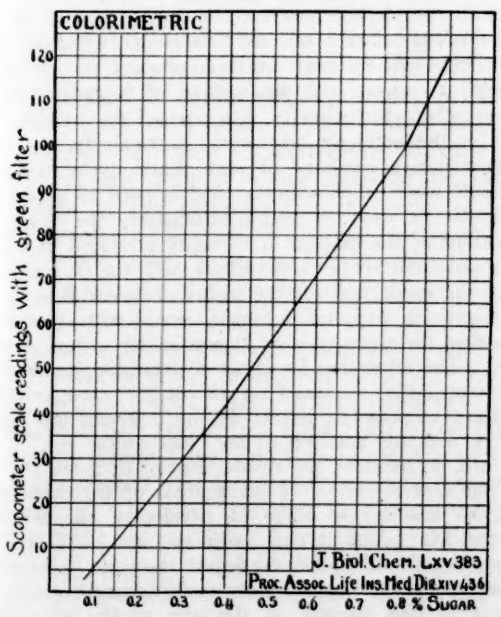

Fig. 7.—Quantitative test for sugar in urine by reduction of dinitrosalicylic acid.

or blue solutions, so that a red filter for blue solutions and a blue-green filter for measuring red solutions are regular parts of the junior scopometer. They will be found mounted in the inner two of the four apertures of a sector in front of the wedge which slight pressure of a lever shifts and automatically centers. While not strictly monochromatic, the light filters isolate pure spectral light from narrow regions and suffice for colorimetric determinations. The blue-green filter is called Epsilon, or number 74 in the Wratten list, and transmits only wavelengths between 5,200 and 5,600 angstroms. The red filter, number 27, isolates frequencies between 5,900 and 6,200 angstroms. Within certain limits the filters prevent shifting of hue and fix the dominant color transmission, but those who may be tempted to experiment with new technics will find that the filters lose effectiveness when they fail to dominate the field. In other words, a blue filter that begins to look red or a red filter that begins to look blue is being overworked.

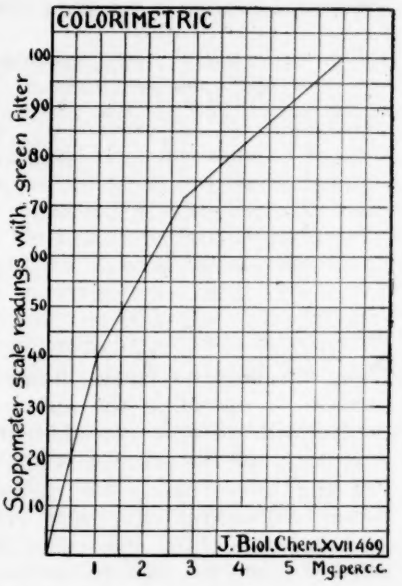

Fig. 8.—Quantitative test for creatinine in urine: scale reading with green filter.

The characteristics of the filter also determine the very important matter of range which is remarkable with the junior scopometer notwithstanding the limitations of filters because it is easy to vary the thickness of the layer of test solution by using test tubes of different sizes up to an inch, or, better still to dilute the completed test with clear water. Figure 7 shows the calibration used in the Prudential Laboratory of a modification of Sumner's urinary sugar test which quantitates urinary sugar over both normal and pathologic ranges. As regards time and technical simplicity, the test, although quantitative, is on a par with the qualitative copper tests in common use.[10] To make the test, urine and the reagent are mixed and heated four minutes. Then the mixture is measured in the scopometer, being diluted with water when necessary to bring concentrated specimens within range of the filter.

Figure 8 shows the calibration for quantitating creatinine in urine, and figure 9 the calibration for measuring the blue molybdate solutions obtained with the copper tests of Folin and Benedict.

The accuracy of the color and turbidity measurements obtainable with the junior scopometer may be illustrated by the results of checks made on the work of different technicians in the usual routine of the Prudential Laboratory. As regards colorimetry, 250 specimens which had been examined and reported on in the regular course of work were taken at random from the racks and given to expert chemists for reexamination by Folin's and Sumner's methods with the best type of Duboscq colorimeter. The comparisons showed an average difference of not more than 0.1 per cent in sugar concentration.

As there was no satisfactory method available for turbidimetric comparisons, nine consecutive specimens of albuminous urine which the technicians had examined and reported on in the regular course of their work were given to a careful chemist for protein estimation

8. Rose, A. R.: J. Lab. & Clin. Med. **13**: 382-383 (Jan.) 1928.
9. Exton, W. G.: J. Optic. Soc. America **14**: 134, 1927.
10. Exton, W. G.; Rose, A. R., and Wells, P. V.: Tr. Association of Life Insurance Medical Directors of America **14**: 436-440, 1926-1927.

by the Kjeldahl method. The results by both methods appear in the accompanying table and show a much better correspondence than I was ever able to obtain during extended experiments with nephelometers.

It remains to be mentioned that all methods have their advantages and disadvantages, and that the disadvantage inherent in the extinction or vanishing point principle is a very real one because it involves visual acuity, which not only differs between observers but may also differ from time to time in the same observer.

Protein Content of Nine Consecutive Specimens of Urine, in Milligrams per Hundred Cubic Centimeters

	Junior Scopometer, Exton Test	Micro-Kjeldahl
1	190	196
2	350	333
3	110	115
4	20	18
5	44	41
6	50	52
7	70	67
8	45	47
9	70	71

As has been explained, however, in describing the method of operating the instrument, visual acuity is pooled with all other variables that might affect measurements and in practice is almost wholly eliminated. On the other hand, the methods afforded by the junior scopometer have very practical and important advantages. Thus, the vanishing point criterion is affected much less than the older methods by color and flocculation differences. It also allows measuring the samples in the same tubes in which the tests are made, which makes for unexampled ease and rapidity of manipulation.

The exceptional feature of the junior scopometer, however, is the entire freedom from all troubles and inaccuracies incident to the preparation and control of

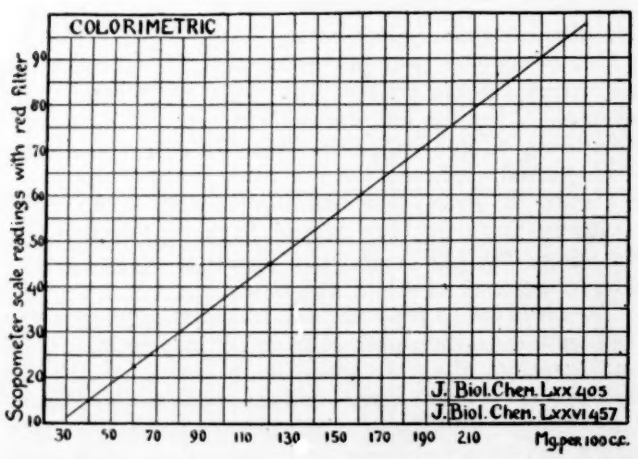

Fig. 9.—Quantitative test for blood sugar by copper reduction.

comparison standards, which it dispenses with altogether. The measurements of cloudiness and color offered by the junior scopometer make it possible to repeat measurements of a sample without respect to the lapse of time, an advantage of practical value which may be particularly helpful to enthusiasts on permanent standards.

The use of light filters makes colorimetry with the junior scopometer often practicable in the presence of interfering colors and tends to extend greatly the range of measurement. Furthermore, by measuring the same sample with selected filters, transmitting different frequencies and repeating such measurements, transformations of a fundamental chemical nature may be subjected to practically continuous observation, and it is not beyond conjecture that this may prove to be the most interesting, if not the most valuable, feature of colorimetry with the junior scopometer.

It might also be mentioned that the vanishing point criterion makes it possible to simplify technic to such an extent that determinations now regarded as too cumbersome for routine work may be brought within the realm of clinical pathology.

Finally, I may state that without exception all of my experiments in turbidimetry and colorimetry strongly suggest that the extinction principle is inherently far more stable than the photometric.

SUMMARY

A new and better method of measuring turbidity and a novel method of colorimetry based on correct spectrometric principles are afforded by a new optical instrument, designed for routine work and called the junior scopometer, which utilizes the extinction or vanishing point criterion to measure both color and turbidity. By dispensing altogether with comparison standards and by measuring samples in the same tubes in which tests are made, unexampled technical simplicity is achieved by the junior scopometer, which, besides other practical advantages, such as increased range, offers new abilities in measuring color and turbidity.

ABSTRACT OF DISCUSSION

DR. A. H. SANFORD, Rochester, Minn.: I have been following with considerable interest the development of this piece of apparatus ever since I saw the first model, which looks quite different from the present finished product in Dr. Exton's laboratory. I can see that this will be of everyday use in the laboratory where turbidimetry is a part of the routine. I can see that in the serology laboratory, particularly, we can get better quantitative readings of such reactions as turbidity in spinal fluids when sulphosalicylic acid is used as a precipitant. It could also be used to read quantitatively the Wassermann reaction, that is, the amount of turbidity produced in a positive Wassermann test. The biophysicist and the biochemist are giving us the most hope for the future of research in medicine. The biophysicist with his accurate, mathematical methods is now offering the right type of apparatus for accurate work in medicine. The other day Dr. Sheard presented his new hemoglobinometer. This is based on almost the same principle as Dr. Exton's scopometer, so far as the mathematical laws are concerned, with the addition of the "mechanical eye," a photoelectric cell, to measure the result, instead of using the human eye for the determination. I know some of the problems that Dr. Exton has had to solve in developing the scopometer, because he has talked it over with me and he, I think, was surprised himself when he developed the first scopometer to find that it was going to follow such accurate mathematical laws as to excite interest on the part of the physicist who works with very exact pieces of apparatus. The large insurance companies are doing much for medicine today in their research laboratories. It may be good business for them to do it, but in developing longevity service and preaching periodic health examinations, and in allowing their medical men and their laboratory men to devote time to research, they are actually helping the medical profession a great deal. They incidentally, of course, are helping the policyholder. I suppose that is good business.

DR. FRANK W. HARTMAN, Detroit: I should like to emphasize again the transition through which hemoglobin methods have gone. Dr. Sanford has mentioned it, and we all know very well the many methods that have been tried and that have failed. I do not know of any other procedure to which

the clinician objects so strenuously as he does to hemoglobin readings under the present methods. These are cited as an example of colorimetric methods. The other day, Drs. Sheard and Sanford presented a new method which I think they will admit is rather complicated but certainly very accurate. If this small practical apparatus can be applied to hemoglobin, blood sugar and other colorimetric methods, we shall have a practical and a far more accurate method than we have at the present time, perhaps even approaching in accuracy the Sheard method, which will not be available to every hospital or every institution. The other thing I should like to emphasize is that research along this particular line is not as simple as it sounds. Dr. Exton has been modifying this apparatus for four or five years and is still modifying it, so that the long road that we all recognize in research is still longer when this type of research is taken up.

DR. WILLIAM G. EXTON, New York: In answer to Dr. Hartman's question, I can only say that I am turning over a clean sample to the manufacturers, who will need about six months before they begin production. I should again like to emphasize that the junior scopometer is not offered as a competitor of the best types of Duboscq for colorimetry. It does, however, permit some color measurements which are impossible with the Duboscq, and it measures turbidity better than any other instrument I have ever been able to get hold of, except its parent, the scopometer. I am hoping that these advantages will make determinations practicable for clinical routine investigation which have hitherto been impossible.

LOCALIZING VALUE OF OPHTHALMIC EXAMINATIONS IN SUPPURATIVE DISEASES OF THE BRAIN*

WELLS P. EAGLETON, M.D.
NEWARK, N. J.

This paper is a study of the localizing ophthalmic phenomena disclosed in the cases of intradural suppuration, verified by operation or autopsy, which have come under my care since I have appreciated the importance of repeated examinations of the visual fields. It refers only to those patients whose mental condition at the time of the examination allowed sufficient cooperation to determine properly their visual defects and oculomotor abnormalities. It includes a total of thirteen abscesses in twelve cases, with seven recoveries, as follows: six cerebellar abscesses, with four recoveries and two deaths (one cerebellar abscess being associated with subdural suppuration, with death); five temporosphenoidal lobe abscesses with two recoveries (one with a complicating streptococcus meningitis), and three deaths; one case of combined cerebellar and temporosphenoidal lobe abscess with recovery. It also includes two cases of bulbar cisterna meningitis with death in each, and four cases of edema of the brain and localized meningitis of the middle fossa, probably from infarcts, with recovery in all.

All cases of frontal lobe suppuration and suppurative meningitis are excluded, although in several of the cases the latter condition developed either as a terminal process or during the course of the disease.

The primary object of this paper is to show that (1) edema of the brain, an accompaniment of septic conditions, abscesses and infarcts, may be diagnosed at an early date by the presence of hemianopic indentations of the fields; (2) the presence or absence of papilledema may be of some localizing value in suppurative diseases of the brain, provided the nature of the lesion is considered; (3) localized meningitis of the bulbar cisterna presents a symptom complex consisting of posterior and middle fossa symptoms, in which bitemporal hemianopic indentations, associated with a peculiar type of semistupor and sixth nerve paralysis, occur; (4) oculomotor group dysfunctions may be studied through their connections with the vestibular apparatus.

DEVELOPMENT

By means of the eye, two of life's greatest accomplishments in nervous association can be objectively examined—sight onto which life superimposed binocular stereoscopic vision. With these two mechanisms—sight and stereoscopic binocular vision—there is associated the refinements for head orientation—the vestibular apparatus. Sight, a special sense, binocular stereoscopic vision by convergence—primarily a motor mechanism—and the static vestibular apparatus, fundamentally a sensory mechanism, thus become parts of one complicated mechanism which life in man has evolved.

Out of its primitive trophism sensation, life early evolved an otolithic system for orientation, which at first was attached directly to the muscles. With the addition of a cerebellum to the central nervous system, a complicated semicircular canal system was superimposed on the otolithic apparatus. Out of sensation came first of all a median, simple, upright retina, and then a lateral compound retina, which later in the vertebrate became a lateral compound inverted retinal eye, with a special supporting nervous framework.

These two separate experiments in life's evolution—vision and orientation—were united by a motor mechanism which, in associating vision with orientation, was the supreme accomplishment of life's nervous associations prior to the acquisition of speech in man—the oculomotor mechanism, which made possible binocular stereoscopic vision.[1]

It is not an accident that the only branchiatic muscles of the fore part of the head, the third, fourth and sixth, are the muscles of bilateral association; for the ocular muscles are branchiated muscles with refinements given to them by the addition of repeated separate nuclei and the later slitting of nuclei, a refinement possessed by no other branchiatic group.[2]

If we would understand stereoscopic vision, we should study the evolution of motion; for in the eye, at the extreme periphery, motion and vision are one.

RELATION OF VISION TO MOTION AND OF MOTION TO COLOR

I lie in a darkened room on my back, looking directly at the ceiling. I throw my arms well out and move my fingers. I see nothing. I bring them a little nearer. At first I do not perceive them, but I move them and now I perceive the motion. I bring them a little nearer and now I perceive an object, but it is only when I move them that I am able to see that they are separate—that there are four fingers.

The hunter lies in the grass. All around him are moving objects, the trees and the grass in the wind. Away at the periphery he sees a streak of red; it moves, and it is that movement—that red—that tells him the

* Because of lack of space, this article is abbreviated here by the omission of case reports and some of the illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

* Read before the joint meeting of the Section on Ophthalmology and the Section on Nervous and Mental Diseases at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 14, 1928.

1. Gaskell, W. H.: The Origin of Vertebrates, New York, Longmans, Green & Co., 1908.
2. Smith, G. E.: Evolution of Man, Oxford Press, 1927.

deer is there. The farmer puts up a scarecrow. He takes a black coat and he makes many tatters so that they move in the wind, for he knows that it is the combination of an unnatural color—a color not in nature—moving when the wind blows, that will frighten the crows.

The painters have discovered this relationship between color and movement, and between movement

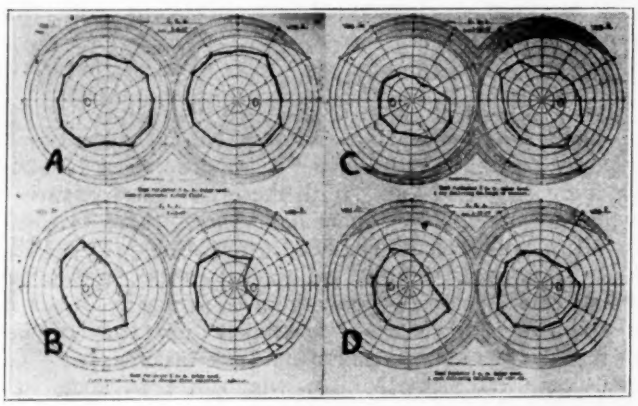

Fig. 8 (case 4: recurrent hemianopic indentations, the first symptoms of edema of the brain from extension of the suppurative process in temporosphenoidal abscess). Fields: *A*, Jan. 3, *B*, Jan. 13, *C*, Jan. 15, *D*, Jan. 22, 1927.

and vision, and have applied it.[3] It is on the relation of color to movement that all modern painting is based, and it is the relation of color to movement that makes modern painting different. First of all Cezanne used color to make perspective, and then Van Gogh (the madman of Arles) found that different colors represented varying degrees of movement—the "orchestration of colors."

In suppurative diseases of the brain this physiologic factor of motion as related to vision is of great diagnostic importance, for it is in the peripheral parts of the field that central visual disturbances are first manifested.

Defects in peripheral vision, disturbances of ocular mobility, and abnormalities of the induced nystagmus from turning, and to caloric stimulation, frequently furnish important localizing evidence of suppurative disease of the brain.

DIFFERENT NERVOUS MECHANISMS VARIOUSLY SUSCEPTIBLE TO EDEMA, AND TO GENERAL OR LOCAL PRESSURE

Experience shows that (*a*) the central visual tract is especially susceptible to edema; (*b*) the central vestibular mechanism is affected by an increase of the general intracranial pressure, especially of the posterior fossa (at times long before the development of papilledema), while (*c*) the motor ocular nerves are paralyzed only by direct pressure. It is the susceptibility of the visual tract to edema that is the cause of hemianoptic indentations of the visual fields in intracranial suppuration.

SWELLING OF THE NERVE HEAD FROM SUPPURATION AROUND THE OPTIC FORAMEN

Suppuration in the bone surrounding the optic canal from spheno-ethmoid disease causes (*a*) a neuritis, which is evidenced by swelling of the nerve head; (*b*) a central scotoma with rapidly failing vision, associated with (*c*) *pain on pressing the eyeball back into the orbit* and on movement of the eyes.

The neuritis, with its accompanying central scotoma and rapidly failing vision, is probably due to the adhesion of the nerve's sheath to the optic foramen, with a resulting "biting" of the nerve and involvement of the macula bundle. The pain on pressure and during ocular movements is due to the presence of an infective process in the bone at the margin of the optic foramen involving the annular ligament of Zinn, to which is attached the external ocular muscles.

In the experience of the staff of the Newark Eye and Ear Infirmary, the four factors (*a*) cold in the head, (*b*) swelling of nerve head, (*c*) central scotoma and (*d*) pain on pressure and during ocular movements have been present in the only three cases in which the immediate result of opening the spheno-ethmoid sinuses was sufficient to warrant the belief that the nasal sinus suppuration was the cause of the failure of vision.[4]

Our experience would teach that with this symptom complex, and in the absence of other neurologic abnormalities or of any evidence of increase of the intracranial pressure (as shown by lumbar puncture), opening of the sphenoid is called for, even without positive roentgen observations. If the operation is performed before destructive degeneration of the nerve has taken place, rapid subsidence of the papillitis and restoration of vision result, and this in cases in which no free pus may have been found in the offending sinus.

In the three cases referred to, the operation apparently cut short an infective process of the mucous membrane which had extended to the bone of the optic canal and the ring of Zinn.

LOCALIZING VALUE OF NERVE HEAD SWELLING OF INTRACRANIAL ORIGIN

It is generally admitted that while papilledema is an indication of increased intracranial pressure, the side of the initial appearance of the swelling and its relative degree do not bear any relationship to the side of the lesion, both being regulated by differences in the intra-

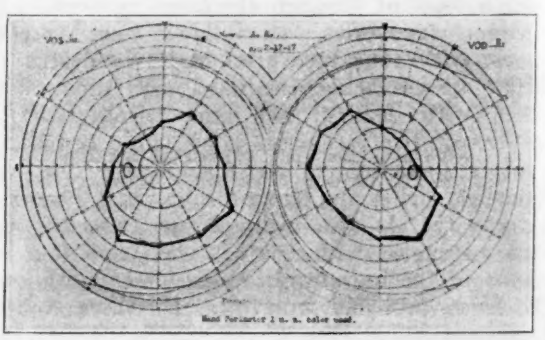

Fig. 23 (case 8).—Sudden development of bitemporal hemianoptic indentations, Feb. 17, 1927.

ocular tension.[5] This, however, is but an incomplete statement of facts, for when the nature of the lesion is considered, the presence or absence of a papilledema may be of some localizing value, because different types of lesions originate papilledema in different ways.

3. Wright, W. H.: Modern Painting, New York, Dodd, Mead & Co., 1926.

4. Eagleton, W. P.: Traumatic and Infective Lesions of the Head, the Chief Manifestations of Which are Visual Disturbances: Their Diagnosis and Treatment, S. Clin. North America **6**: 1435 (Dec.) 1926.

5. Parker, W. R.: Choked Disk, J. A. M. A. **67**: 1053 (Oct. 7) 1916; The Mechanism of Papilledema, Tr. Am. Acad. Ophth. & Oto-Laryng., 1924.

Thus papilledema from cerebral tumors is largely a hydrops of the arachnoid sheath and of the nerve itself, the dilated veins and hemorrhages being secondary to the hydrops. In the main the papilledema of intracranial neoplasms is the result of a general increase in the intracranial pressure from a lesion whose slow growth has given the brain substance ample opportunity to compensate.

In abscess of the brain, the intracranial pressure from edema and abscess formation may be greatly increased, although the ventricles are collapsed and the pressure of the fluid in the cerebrospinal spaces is not increased, for there may be an edema of the substance of the cerebral tissue, and when this edema involves the optic tract within the brain evidences of it may appear in the nerve head.

DIFFERENCES IN THE EFFECT ON CEREBRAL SUBSTANCE WHEN INVADED BY TUMOR FORMATION, AFFECTED BY A VASCULAR DISTURBANCE, OR THE SEAT OF AN ACUTE INFECTIVE PROCESS

In tumors, the brain is subjected to a gradually increasing pressure; in vascular disease localized areas of cerebral tissue suffer from nutritional disturbance, and in septic disease the infected area is subjected to an invading edema.

Abscess of the brain and septic vascular infarcts, such as frequently occur in sinus thrombosis, offer acute insults to the cerebral tissue. Both are largely edematous processes, for it is the edema of inflammation that is the chief cause of all inflammatory swelling. It is the evidence of this cerebral edema—inflammatory swelling—that occasions the hemianoptic indentation of the field.

CHARACTERISTICS OF VISUAL FIELDS IN EDEMA OF BRAIN FROM INFECTION; ABSCESS, SEPTIC INFARCTS AND RETROGRADE THROMBOPHLEBITIS

(*a*) They are rapidly changing.

(*b*) The hemianoptic indentation often precedes by several days, or even weeks, the appearance of outspoken neurologic signs of sufficient character to permit localization of the lesion.

(*c*) The field defect is not recognized by the patient. In one of my cases of temporosphenoidal lobe abscess the patient was observed several times running into things on his left side on the day preceding the examination, which disclosed an almost complete hemianopia.

The edema may be very diffuse, frequently involving the cerebrum of the homolateral side in abscess of the cerebellum (see fields in figures 13, 14, 15).

Cerebral edema, like all inflammatory edema and like all swelling of the soft parts, may last for months. It frequently precedes all evidence of compression and may continue long after compression has subsided. It is the diffuseness and constantly changing character of the inflammatory edema that makes hemianoptic disturbances so frequent in suppurative diseases within the cerebral tissue.

EDEMA THE CAUSE OF HOMONYMOUS HEMIANOPTIC VISUAL DEFECTS

As formerly stated, I am of the opinion that the unequal[6] homonymous defects seen in abscesses of the cerebrum and cerebellum are rarely due to a direct pressure by the abscess on the inferior fasciculus as it passes around the horn of the lateral ventricle,[7] because in cerebral abscess (1) the ventricle of the homolateral side is not distended but is obliterated, and (2) the visual field defect persists for a long time after the pressure has been removed. Rather, it would appear that the visual defect is the result of edema of the cerebral substance involving the optic tract of the affected hemisphere.

CONVULSIONS, TRANSIENT PARALYSIS AND HEMIANOPIA IN BLOOD STREAM INFECTIONS

A convulsion or an incomplete and transient paralysis occurring in the course of a blood stream infection may be a manifestation of a small infarct with an associated cerebral edema. The transient character of the convulsion or paralysis, and the complete hemianopia which so frequently follows the convulsion or accompanies the paralysis (H. V., case 3; figs. 3 to 7), point to an edematous origin, especially because, although the convulsions, paralysis and complete hemianopia rapidly disappear, hemianopic field defects may continue for a considerable period.

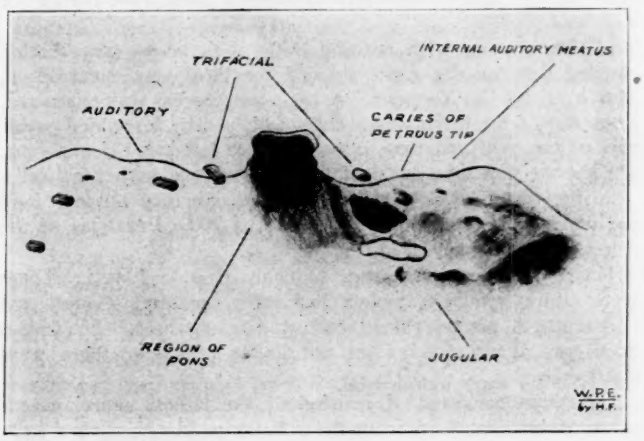

Fig. 24.—Posterior surface.

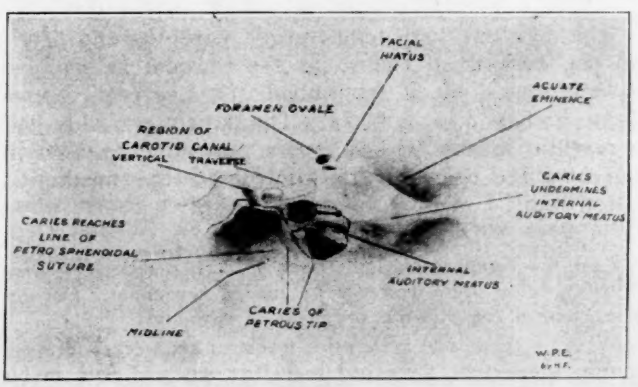

Fig. 25.—Superior surface.

Figs. 24 and 25 (case 8).—Caries of the apex of the petrous pyramid involving the middle and posterior fossae, causing localized bulbar meningitis; fields rapidly changing in character.

TRAINED TECHNICIAN: NECESSITY OF REPEATED FIELDS BEING TAKEN AS A ROUTINE

The changing character of the fields resulting from edema necessitates their being daily recorded in all cases of suspected suppurative disease. This requires

6. Schirmer, Otto: A Case of Incongruous Homonymous Hemianopsia, Arch. Ophth. **41**, 1912.

7. Eagleton, W. P.: Brain Abscess, New York, Macmillan Company, p. 180.

the employment of a trained technician who can devote her whole time to the work. Today the diagnosis of brain abscess is seldom made before the supervention of compression, but in the vast majority of cases there is a long interval during which a provisional diagnosis should be made, although the patient's condition may not be regarded as serious. This is especially so in that large group of cases in which cerebral suppuration is the result of several factors, as when suppuration in the ear, nose or other parts of the body is associated with a trauma or follows a sinus thrombophlebitis.

CEREBRAL EDEMA WITH SINUS THROMBOSIS

CASE 3.—*Sinus thrombosis associated with localized meningitis, a septic infarct, and an associated cerebral edema, giving rise to paralysis of the face and arm with a complete hemianopia, relieved by the removal of the focus of infection in the bone and the evacuation of cerebrospinal fluid from the cortex and base.*

H. V., a man, with chronic otitis with acute exacerbation causing pain on the right side of the head was operated on, March 11, by Dr. Zwaifler. A perisinus abscess was evacuated. Four days later there was a chill, followed by left-sided paralysis of the arm and face, with complete left-sided hemianopia. On lumbar puncture, turbid fluid was obtained with 1,500 cells.

A few days later, a second lumbar puncture showed fluid not under pressure, with a cell count of 700. Paralysis of the arm and face disappeared.

March 24, the temperature suddenly rose to 104 F. There were chills, vomiting, violent headache, great restlessness and delirium. A positive blood culture was obtained. The spinal fluid was again cloudy, but not under pressure; there were 2,500 cells.

Operation consisted of incision of the lateral sinus; evacuation of infected fluid from the subarachnoid region, and ligation of the common carotid artery and internal jugular vein. The patient recovered.

The delirium, high temperature, paralysis and hemianopia were from edema, as the unequal hemianopic indentations, which continued for several weeks (case 3; figs. 3, 4, 5, 6, 7). The patient probably had a cerebral infarct with a severe protective reaction in the cerebral tissue. The control of the meningitis cured him.

CEREBRAL ABSCESS

CASE 4.—*Temporosphenoidal lobe abscess, each exacerbation of suppuration being preceded by sudden hemianoptic indentations, with a complicating streptococcic meningitis.*

W. A., a youth, had acute otitis media of six weeks' duration, during which time there had been dizziness and pain in his head.

December 29, a simple mastoid operation was performed.

Three days later ophthalmoscopic examination showed the veins full, with slight blurring of the disk. There was a high temperature. Lumbar puncture yielded turbid fluid not under pressure with a cell count of 3,100. There were no microorganisms.

A second operation was performed with removal of the solid angle and evacuation of fluid from the middle and posterior fossae. After-treatment consisted of repeated lumbar punctures with transfusions.

The patient did well for one week, and then developed slight lower facial weakness, and impaired memory for names. January 13, the pain in his head returned. He vomited twice, and had a convulsion. There was complete aphasia for names and large hemianoptic indentations (see fields, figure 8, *A* and *B*).

At a third operation ventricular puncture was performed, followed by cerebral expiration and evacuation of a small abscess, with considerable clear fluid. The following day all aphasia disappeared. Lumbar puncture yielded fluid containing nonhemolytic streptococci. The after-treatment consisted of repeated punctures and transfusions.

February 20, the patient had been doing well until he suddenly vomited. Later pain developed in the head over the left eye. The aphasia slightly returned.

During the next few days the margins of the disk again became slightly blurred. There was a great increase in the hemianoptic indentations (fig. 9, *C* and *D*).

March 14, there was a sudden recurrence of great pain in the head accompanied by vomiting, stiff neck and a double Kernig sign. Papilledema was present in both eyes with hemorrhages in one retina. There was marked right arm and facial weakness; the fields were markedly cut off in both eyes. Lumbar puncture, yielded turbid fluid with 3,000 cells.

At a fourth operation the brain was again explored with negative results.

Transfusions and lumbar punctures were followed by improvement. April 5, the patient again vomited, but there was no pain. April 11, there was a convulsion with twitching on the right side of the body; the face was drawn to the right. A few hours later there was another convulsion, with vomiting.

At a fifth operation, April 12, the temporosphenoidal lobe was again searched. Only a few drops of pus were found, but a large mass of infiltrated tissue was felt. A large opening was made in the dura, through which protruded cerebral hernia, showing inflammatory infiltration, with multiple hemorrhages. The patient recovered.

This boy probably had repeated infarcts, some of which broke down. The pathologic process was about as follows: First, he had a retrograde thrombophlebitis from his ear with abscess formation. From this there were two extensions of the suppurative process, each being associated with an increase of the edema. The fields show this increase. Sometimes several days before the onset of any symptoms of pressure or extension he would vomit and have a headache. The fields would immediately become almost completely hemianoptic. This was repeated several times, and we were able to tell, sometimes days before, that he was going to have a recurrence. The patient came to recognize it himself, during the daily mapping out of his fields (case 4; figs. 8, 9, 10, 11).

CASE 5.—*Cerebellar abscess and sinus thrombophlebitis with hemianoptic indentations of fields.*

A. W., a woman, had had a chronic discharge in the right ear for thirty years. Four weeks before admission she complained of headache. Hearing was present in the right ear on admission; the patient was slightly stuporous, with intervals of delirium. There were stiff neck, papilledema with hemorrhages, weakness of the external rectus of both eyes, and a Kernig sign. Lumbar puncture yielded cloudy fluid, negative for organisms.

Under local anesthesia the common carotid was ligated with fascia lata. As soon as the membrane was applied firmly to the artery, the patient became unconscious and could not be aroused. The eyeground of the same side became white, while the veins became fuller. When the ligature was released, the patient immediately regained consciousness and the eyeground became normal. This experiment was repeated with the same effect; that is, as soon as the ligature was fully tightened she became unconscious, would not answer questions, and a white retina appeared. The ligature was then released sufficiently to allow the return of arterial blood to the retina, at which point the patient became conscious again. During the whole of the experiment there was no numbness complained of in the hands or feet. The solid angle was removed; cholesteatoma and pus filled the antrum and middle ear. The lateral sinus contained blood. An opening in the dura was found in the region of the ductus endolymphaticus, through which pus escaped. A large intracerebellar abscess was evacuated, at least two ounces of pus being recovered. The abscess was situated rather high, extending upward toward the superior surface of the cerebellum under the tentorium, and was apparently of considerable age.

Following the operation the patient became totally deaf in the right ear with a marked nystagmus (undoubtedly from the operation). The bilateral external rectus paralysis was much worse. October 20, the patient was in excellent condition, with a very large cerebellar hernia and a complete hemianopia with field contraction. October 21, she had a complete right-sided facial paralysis, and the right arm was slightly weak. She complained chiefly of numbness in the arm.

Reevacuation of the abscess was done. November 1, the patient had a fluctuating temperature and chills. The jugular vein was thrombosed and ligated (Dr. John Bissett), with recovery (case 5; fig. 12).

CASE 6.—*Sinus thrombosis, followed by cerebellar abscess and purulent meningitis of the subdural space above the tentorium, associated with hemianoptic indentation of field from edema of the visual tract of the homolateral side. Death from meningitis. Postmorten.*

S. S., a man, had a chronic discharge from the ear, with acute exacerbation and, one month before admission, chills and fever, with pain in the head and dizziness, the pain being localized in the back of the head and behind the eye.

The temperature was 103 F. There was double papilledema, vomiting and constant dizziness; the left pupil was larger than the right; there was spontaneous nystagmus and slight stiff neck. The fields were cut off in the same manner as in an abscess of the middle fossa (fig. 13).

At operation, October 21, the common carotid and jugular veins were ligated. There was a cholesteatoma, and the sinus was obliterated and filled with purulent matter. There was bleeding from the superior petrosal sinus. October 27, the fields showed progressive contraction on the left side; there was a convulsion and nystagmus (figs. 14 and 15).

At a second operation the abscess of the cerebellum was evacuated. Splitting of the dura of the tentorium liberated a large quantity of pus between the brain and the occipital lobe. Death ensued.

At postmortem there was general cerebral pressure with moderate distention of both ventricles and enlargement of the anterior horn of the lateral ventricle on the right side. There was distention of third ventricle. An exudate was present in the subdural space over the base of the right middle fossa, which extended about the sella and the sylvian fissure, and over the pons. The mesial side of the right occipital lobe was covered with exudate, which appeared to come from below upward. There was encephalitis of the right temporosphenoidal lobe. The calcarine fissure on the right upper lip was covered with a small exudate. The optic thalami of both sides had punctate hemorrhages. The third ventricle was the seat of "abklatch" meningitis (fig. 16).

There was a layer of exudate over the calcarine fissure of the one side and not the other. We thought that this explained the condition, but microscopic examination by Dr. Hans Brunner of serial sections of the calcarine region showed the usual signs of meningitis, and Marchi stain gave what looked like fat, the result of cerebral tissue degeneration.

NERVE PARALYSIS

In suppurative lesions, while inhibition of sensory function may occur from edema, paralysis of the motor nerves results only from direct pressure.

The sensory optic tract of the brain is apparently much more easily inhibited in its action than are the motor nerves after they have left the brain substance itself. Thus, jars and blows cause one "to see stars" and "knock one blind." They do not cause a paralysis of the ocular motor nerves.

The third, fourth and sixth nerves in the brain substance and in their course to the muscles are inhibited from functioning only when subjected to direct pressure; edema apparently has little influence. The third nerve, after it leaves the brain, passes into a large free space in the piarachnoid meshes. It is paralyzed only when an exudate of inflammation completely fills the space. Thus, in suppurative disease, paralysis of the third nerve appears in the terminal stages of meningitis. It rarely results from the nerve being pressed against the internal carotid, as occurs [8] so frequently in the general cerebral pressure from tumor.

SUPERIOR OBLIQUE PARALYSIS

The fourth nerve does not present any point especially susceptible to pressure, as it is protected by the piarachnoid in its passage around the collar of the midbrain.

When present, a paralysis of the fourth nerve alone should be pathognomonic of suppuration in the posterior fossa. However, I know of only one other case in the literature [9] in which a cerebellar abscess (situated high up and toward the median line) caused an isolated superior rectus paralysis, as in the case of J. S. (case 7). The fourth, with the third, may be attacked by inflammatory exudate involvement of the cavernous sinus.

CASE 7.—*Combined cerebellar abscess (with fourth nerve paralysis) and temporosphenoidal lobe abscess recovery.*

J. S., a man, had acute otitis media (left) in June. In July there was labyrinth irritation with spontaneous nystagmus, horizontal to the left, increased on looking to the left, moderate on looking to the right. Hearing was normal. There was vertical diplopia, considered to be due to paralysis of the left superior oblique from fourth nerve pressure. July 24, the mastoid was opened by Dr. H. H. Briggs. Following the operation the diplopia disappeared but the nystagmus continued.

September 21 there was severe headache, extreme dizziness and vomiting, with recurrence of double vision. October 7, the disk margins were slightly hazy on the nasal side, especially the left; the veins were full. There was slight horizontal nystagmus on looking to the right and the left. Slight weakness was present in the right lower part of the face. Lumbar puncture yielded clear fluid, under slight pressure; globulin was not increased and there were no micro-organisms. Diagnosis was cerebellar abscess near the apex of the petrous pyramid.

The first operation, performed by Dr. John V. Bissett, consisted of ventricular puncture and double cerebellar decompression (fig. 17).

October 16, the patient complained of pain in the eyes. The margin of the left disk was more blurred than two weeks previously. There was a right external strabismus. The left eye deviated downward and outward. The nystagmus was more marked on looking to the left.

October 17, the deep cerebellar abscess was evacuated, a small amount of pus being obtained.

October 26, the patient vomited. He had severe pain in the back of the head and in both eyes. When he was lying on his side there was a marked horizontal nystagmus to the left; the right eye was lower and looked more prominent than the left. He had a vertical diplopia. (With a red glass over the right eye, the red light was higher than the white.)

October 29, nystagmus was not so marked and was rotatory in character. The right disk was now completely blurred; the veins were full. Lumbar puncture yielded clear fluid.

A second operation, November 8, consisted of exploration of the apex of the petrous pyramid along the floor of the middle fossa. The middle meningeal artery was torn (fig. 18).

November 12, there was pressure papilledema. The left fundus showed greater changes than the right. There was sudden aphasia, naming type.

At a third operation a small abscess of the temporosphenoidal lobe from above the region of the middle meningeal artery was evacuated.

November 14, aphasia disappeared but the patient vomited again. He complained of pain behind the eye. There was a hemianoptic indentation suggestive of a temporosphenoidal lobe abscess (fig. 19).

8. Cushing, Harvey: The Field Defects Produced by Temporal Lobe Lesions, Brain **44**: 341 (Jan.) 1922. Cushing, Harvey; and Walker, C. B.: Distortions of the Visual Fields in Cases of Brain Tumor, Arch. Ophth. **41**: 559.

9. Szasz, T., and Richter, H.: Otogenous Abscess of the Cerebellum and Paralysis of the Trochlearis, Klin. Wchnschr. **11**: 501, 1923.

At a fourth operation, November 17, reevacuation of the termporosphenoidal lobe abscess was performed, a large amount of pus being obtained. November 20, there was a recurrence of partial naming aphasia. Lumbar puncture yielded clear fluid under slight pressure (fig. 20).

November 26, there was severe pain in the eyes and head. The patient still had diplopia.

January 5, there was horizontal nystagmus in the right outer corner, and rotatory nystagmus in the left. The patient recovered (fig. 21).

The patient at first had a localized abscess of the cerebellum, situated so near the median line that it caused a fourth nerve paralysis with a vertical diplopia, but no papilledema. Because of the localization of the suppuration near the median line, there was no pressure on the iter and there was no contraction of the field. Later, when he developed a temporosphenoidal abscess, he had continued and repeated contractions of the field (case 7; figs. 17, 18, 19, 20, 21).

ABDUCTOR PARALYSIS

The sixth nerve, on the other hand, presents several points of susceptibility to pressure after leaving the pons:

1. As it passes through the bulbar cisterna it may be attacked by exudate.
2. As it enters the dural canal it may be bitten by the sharp dural opening.
3. In the dural canal a swelling of the periosteum of the apex of the petrous pyramid may paralyze it.
4. An inflammation of the petrososphenoidal ligament may also paralyze it as it passes through Donello's canal.
5. It is frequently attacked in the walls of the cavernous sinus itself. Paralysis of the sixth nerve can thus occur in either posterior or middle fossa suppurative lesions, or in association with cavernous sinus thrombophlebitis.

BITEMPORAL HEMIANOPTIC INDENTATIONS IN THE DIAGNOSIS OF LOCALIZED BULBAR MENINGITIS

A localized bulbar cisterna meningitis, I think, may be diagnosed by presenting, first of all, middle fossa symptoms, followed later by posterior fossa symptoms, and a bitemporal hemianoptic indentation of the field; the middle fossa symptoms being pain behind the eye, headache, and irregular contractions of the field, and the posterior fossa symptoms, nystagmus and recurrent attacks of stiffness of the neck. If to these symptoms is added a sixth nerve paralysis of the homolateral or contralateral side, or both, the diagnosis should be definite enough to warrant exploration of both the petrous tip and the bulbar cisterna.

CASE 8.—*Localized bulbar cisterna meningitis following caries of apex of petrous pyramid without labyrinthitis. The route of invasion having been through the supratubal cells. Irregular bitemporal hemianoptic indentation of the field. Death. Postmortem.*

A. R., who had had right-sided otitis five years previously, was admitted January 8, because of discharge from the right ear, pain in the head and vomiting.

December 20, a simple mastoid operation was performed by Dr. John Hemsath.

January 4, there was a profuse discharge from the mastoid wound and ear.

January 11, the visual fields were suggestive of bitemporal hemianoptic contraction. The patient had irregular pain in the head.

January 14, there was slight stiffness of the neck.

January 15, the visual field was suggestive of right-sided hemianoptic indentations.

January 18, the visual field was suggestive of left-sided hemianoptic indentations (note changing character of the indentations; fig. 22).

January 22, the patient complained of severe pain in the right side of the face.

February 8, there was severe dizziness and pain over the right eye, in the head and in the back of the neck. The visual fields were suggestive of bitemporal hemianoptic indentations.

From February 8 to 18, the patient had attacks of pain in the head and over the right eye. There was slight stiff neck. The temperature ranged from 100 to 101 F. February 18, there was severe dizziness, associated with nystagmus and vomiting.

Examination showed spontaneous horizontal nystagmus to the right. The disk margins were slightly indistinct and the vessels full. There was weakness in the left lower part of the face. Lumbar puncture yielded cloudy fluid with 3,500 cells. The visual fields showed marked bitemporal contractions (fig. 23).

Operation consisted of ligation of the common carotid and removal of the solid angle. The lateral arm of the cisterna of the pons was opened, evacuating a large quantity of fluid. Exploratory puncture of the cerebellum and of the temporal lobe was negative. The lateral ventricle was tapped. A lumbar puncture yielded sterile fluid.

Death took place four days later in the characteristic coma of bulbar meningitis; that is, with the patient lying on the back, semicomatose, without restlessness or screaming.

At postmortem the apex of the petrous pyramid was seen to be the seat of a cavity two-thirds inch (1.75 cm.) in extent. The caries involved the superior and posterior surfaces of the petrous pyramid, with the compact bone of the superior border remaining. The erosion on the posterior surface of the pyramid extended from the petrososphenoidal suture to within a third of an inch of the inner border of the internal auditory meatus, the latter being undermined by the carious cavity in its depth. The cavity was one-half inch (1.3 cm.) in width, three-eighths inch (1 cm.) in length, and three-eighths inch (1 cm.) in the vertical plane, and contained a mass of cheesy pus and detritus (fig. 24).

On the superior surface of the pyramid, the carious area lay under the fifth nerve, the overlying ganglion being edematous with granulation tissue. The granulation mass involved the carotid canal, although the carotid artery was pervious (fig. 25).

The location of the cavity involving both the floor of the middle fossa and the bulbar depression in the posterior fossa explained the combination of symptoms of pain of the first branch of the fifth, and nystagmus of bulbar origin.

The originally localized meningitis of the bulbous cisterna had extended from the pontile region forward to the chiasmal cisterna, laterally upward along the sylvian fissure, and posteriorly over the cerebellum. There was purulent meningitis of the left frontal hemisphere with dilatation of the veins.

Section of the brain revealed multiple punctate hemorrhages in the basal ganglion, especially on the opposite side to the petrous caries.

The location of the purulent exudate in the bulbar cisterna explains the sudden onset of the nystagmus and the bitemporal indentation of the field after the process had broken loose from its localization in the bulbar cisterna (case 8; figs. 22, 23).

EXAMINATION OF OCULOMOTOR GROUP DYSFUNCTION BY VESTIBULAR TESTS

The whole oculomotor apparatus should not be solely treated as disjointed, disconnected muscles, as paralysis of one or another occurs only in exceptional lesions. The mechanism should be examined as a whole, and any abnormality regarded as a group dysfunction. This group function can be best tested by the turning chair and the cold caloric; and in suppurative disease of the brain these vestibular tests frequently will give evidence of abnormality in the absence of paralysis of individual

nerves. Thus, the inability to produce an induced nystagmus to the cold caloric test in the upright position, although present when the patient lies down, occurs in increased intracranial pressure, especially of the posterior fossa; in certain cases long before papilledema is present (figs. 26 and 27). Again, the reduction of the induced nystagmus on turning—a reduction of more than 50 per cent of the normal—is present in all effusions into the piarachnoid of the posterior fossa.[10]

CONCLUSIONS

1. Routine daily recording of visual fields by a trained technician will frequently add localizing information in suppurative diseases within the dura.

2. Edema of the brain, the result of suppuration, can be diagnosed, if the edema involves the optic tract, by uneven hemianoptic indentations of the contralateral side. These indentations frequently are transient.

3. The edematous nature of the lesion is shown by constant variations in the fields.

4. Cerebral edema may extend from the posterior fossa to the great brain, although a localized abscess is confined to the posterior fossa itself. Such fields are generally contracted, as well as having a general hemianoptic tendency (fig. 28).

5. Localized bulbar cisterna meningitis may be diagnosed by a combination of middle and posterior fossa symptoms, associated with bitemporal hemianoptic indentations and a peculiar type of semicoma.

6. Papilledema in suppurative lesions possesses some localizing value.

7. Blindness from sinus suppuration is characterized by (*a*) a cold in the head, followed by (*b*) optic neuritis, with (*c*) central scotoma, (*d*) pain on pressing the eyeball back into the orbit and (*e*) on ocular movements.

8. Fourth nerve paralysis localizes the lesion in a posterior fossa near the median line. Third nerve paralysis has little localizing value.

9. Sixth nerve paralysis stands between the two in localizing importance.

10. Pain behind the eye from irritation of the ophthalmic branch of the fifth nerve places the lesion in the middle fossa.

11. Dysfunction of the oculomotor apparatus may be tested by the vestibular tests through which (*a*) increased intracranial pressure and (*b*) effusions over the cerebellar cortex may be demonstrated.

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ABSTRACT OF DISCUSSION

DR. GEORGE F. SUKER, Chicago: I cannot subscribe to the author's interpretation of papilledema and neuritis. I do not see how he can make a diagnosis of suppurative lesions of the brain from any perimetric field of vision, nor how he can make any definite localization of cerebral abscess from a particular field of vision. The majority of fields he has shown are concentric contractions which may occur in several intracranial complications, not necessarily brain tumor or brain abscess. Furthermore, the attempt to localize an abscess or brain tumor according to the size of the choked disk is fallacious. Choked disk is simply an indication of pressure, but absolutely to rely on swelling of the disk or edema as an indication that the tumor is on the left or right side of the brain is erroneous and fallacious and certainly bad clinical judgment. The only distinction that can possibly be made in the differentiation of brain tumor and abscess is on the large and broad principle that an abscess frequently contains toxic material which can be absorbed, producing a toxic neuritis with central scotoma. That is not indicative of an abscess, but it may accompany an abscess. An abscess or brain tumor may not produce intracranial pressure. If the abscess does produce a papilledema, then that papilledema has been preceded by an optic neuritis; but there is a wide difference between optic neuritis and papilledema, which the author did not take into consideration. As far as the immediate localization is concerned, one need pay little attention to whether the condition is choked disk or optic neuritis. If it is papilledema, one knows absolutely that it is not of intraocular origin. The pressure may be due to orbital or intracranial disease, but the basic principle of papilledema is increased pressure—a stasis. Papilledema may last for several years and not cause any reduction in either the field of vision or the acuity. But with an optic neuritis there is interference with both acuity and vision, and the latter can stimulate almost any type of hemianopia. With a papilledema an interference with the visual field and acuity appears as soon as a neuritic element supervenes, which often occurs. A simple edema of the optic nerve head, not involving either tract or nerve itself, will not show any interference with vision to speak of, and particularly not in the field until later on, when either nerve or tract is implicated in the edema. A brain abscess is not as prone to increase in size as is a brain tumor, but will remain more or less stationary. Brain tumor or abscess may exist without any optic nerve or ocular muscle involvement irrespective of size or location.

DR. ALLEN GREENWOOD, Boston: Dr. Eagleton said distinctly that there was no localizing indication from an optic papilledema. He did localize some of the posterior cerebellar abscesses as being on a certain side of the brain from the field, but he gave credit to Dr. Parker for showing us that a choked disk depends on pressure within the eye itself and does not give any indication of which side the tumor is on in the brain.

DR. GEORGE S. DERBY, Boston: Dr. Eagleton described a perfectly typical case of acute retrobulbar neuritis and said that even if roentgen examination was negative, as I understood, it was advisable to open the sphenoid. I understood him to say that the sphenoid was responsible for many of these cases. I thought that teaching belonged to the past. We all see these cases of acute retrobulbar neuritis—they are not very infrequent—but it is one of the most obscure diseases in ophthalmology. In a few cases, acute retrobulbar neuritis is an early sign of multiple sclerosis; in a few cases it may be due to infected sinuses, but in most cases the etiology is not known. We know that many of these patients get well spontaneously; in general, if they are left alone they will get well. A few will not. Of course, a badly infected sinus must be taken care of. But, certainly, unless there is a distinct indication for operation, it should not be done.

DR. ALBERT E. STERNE, Indianapolis: I do not believe that this paper should go unchallenged from the neurologic side altogether. It would be fine if the author could be substantiated in the conclusions that he has brought forward. From the neurologic angle, I do not think that it can be done. In the first place, as Dr. Suker has pointed out, the occurrence of papilledema is not always to be interpreted as a focalizing or even a circumscribing symptom intracranially. We see it at times in encephalitis, where frequently its intensity vacillates. It has no focal significance. The effects of intracranial pressure on the visual fields are extremely important, but to interpret this phenomenon as always localizing in character would be entirely erroneous. In the first place, we find papilledema and choked disk not infrequently in the eye opposite to the side in which the gross lesion in the hemisphere may occur. It is often misleading to depend on the presence of choked disk on one side only, and to interpret this as being the side on which the brain lesion would be found. In the frontal lobe, we frequently find a large tumor with papilledema on the side opposite. Intracranial cysts and abscesses are not always accompanied by manifestations in the background of the eye. In the Scientific Exhibit I have a specimen of an abscess in the right cerebellar lobe which destroyed the dentate nucleus entirely. In that case the abscess lasted for years—sufficiently long to show the degenerative processes that occur secondary to the destruction of the nucleus. This was chiefly manifest on the

10. Eagleton, W. P.: Decompression for the Relief of Disturbances of the Auditory Apparatus of Intracranial Origin: Report of Three Cases with a Previously Undescribed Aural Condition, Tr. Am. Otol. Soc., June 10 and 11, 1912; Vestibular Tests in Intracranial Surgery, Tr. Am. Laryng. Rhinol. & Otol. Soc., 1922.

side opposite to the lesion, notably in the olivary body and nucleus. In that case there was not the slightest papilledema on repeated examination of either side. The man, who died of an intercurrent disease, lived for many years without a brain operation and without any papilledema whatever. In tumors of the cerebral hemispheres we frequently find that the perimetric disturbance is greater on the opposite side, while the blind spot is more affected on the side of the lesion. It is fallacious to depend on the significance of papilledema alone, much less to assign to papilledema, as such, any focalizing moment whatever. It has large general importance, as an indication of increased intracranial pressure, but as a symptom of focalization it is unreliable.

DR. JOHN E. WEEKS, New York: The author has done well in calling attention to the value of repeated and frequent examinations of the fields in disturbances of this kind. Certainly, in a case of cerebellar tumor the field does not fluctuate to any great extent. It may decrease, but when it does it decreases gradually. In cases in which defects in the fields of vision are due to infection of the brain, the degree of infection, as it varies, must cause changes in the field of vision. This, in my opinion, is a valuable diagnostic asset in the evidence that we may get in cases of obscure brain lesions. I cannot agree with Dr. Derby that operation is not indicated unless roentgen examination or the examination of the rhinologist points to definite disease of the sinuses. In my experience there have been a number of cases in which examination by competent men showed nothing but edema of the mucous membranes of the sphenoidal sinuses. Free drainage of the sphenoidal sinuses and also of the posterior ethmoids brought about recovery in cases in which progressive diminution of the vision and fields of vision was going on.

DR. WELLS P. EAGLETON, Newark, N. J.: I am not talking about papilledema; I am talking about edema of the brain—an entirely different thing. I have called the attention of ophthalmologists to the fact that they have in their possession a means whereby they can be of great assistance to the man who does not know whether his patient has localized intracranial suppuration or not. Today the rule in all hospitals is to send for the ophthalmologist, who, on examination, says that the patient has or has not papilledema and goes on his way perfectly satisfied with that. As has been said, it may or may not be present, but that has nothing to do with the subject. But if these ophthalmologists make daily examinations of the fields in edema of the brain, the result of infection, they will contribute something of great importance in the localization of infective lesions within the cranium. That is the whole object of the paper. Dr. Derby says that accessory sinus operations for blindness should not be performed. I agree with him, except in instances in which there is a rational basis for it and I stated that in a large number of cases in which it has been my privilege to watch the operation, in only three cases has the operation been indicated. In every one of those cases there has been prompt and complete restoration of vision following the operation. What are the indications for the operation? Cold in the head followed by a papillitis with a large central scotoma and rapidly failing vision, associated with that something to which nobody pays any attention but which is important, that when you press the man's eye or when he moves his eye in one direction or the other, he says it hurts him. He has an acute inflammatory process involving the ring of Zinn. Now if, after the neurologist has examined that man and found nothing, one does a lumbar puncture and finds that the cerebrospinal fluid is not under pressure, then one is warranted in having the sphenoid opened, and in three of the cases in which these indications were followed, restoration of vision has been almost immediate and complete.

Brain Surgery.—Neurosurgery is perhaps the youngest of medical specialties. Operations upon the central nervous system were naturally doomed to failure until Lister had given us the secret of the control of sepsis, and Ferrier had provided the clue to localization of function in the brain; for sepsis within the meninges spells death and blind exploration may mean paralysis. —Penfield, Wilder: The Field of Neurosurgery, *Canad. M. A. J.*, December, 1928.

Special Article

RELATION OF MEDICINE TO PSYCHOLOGY *

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Medicine and psychology as kinsfolk in the family of the sciences may be regarded as cousins, and if "once removed" are restorable to a sympathetic kinship. They are related by the ties of a common origin, joined by nature but put asunder by the artificial caste system of academic tradition. Body and mind in their making are made one; but, as applies no less to the ritually wedded couple, the disturbing question arises: Which one? In this instance each may well take the pledge unreservedly to honor, cherish and obey the other.

The claim of possession, that the body has a mind or the mind a body, is as misleading as the allied doctrine of demon possession, which primitive explanation of disease registers the first encounter of physician and psychologist. The early medicine man was priest, psychologist and physician in one, and a bit of a faker too. If later he specialized as healer of fleshly ills, he would still be baffled by an epileptic's convulsions or a paranoiac's raving delusions, and turn the case over to the religio-psychologist, whose omniscience in turn was equal to devising an exorcism and increasing his prestige. Both professions seem to have retained their mental habits. The "twentieth-century limited" physician, confronted with a mental, especially a temperamental, case, follows the ancient precedent and says, "Let George the psychologist do it"; and the contemporary psychologist is easily flattered into the ambition to be all things to all men, and even more to some women, whom it is more interesting to psycho-exorcise. Professional nature seems as constant as human nature.

But the far-reaching rehabilitation of the kinship of medicine and psychology, which is our latter-day heritage, demonstrates that the world does move, if we have the ingenuity to move it, to overcome its inertia, to dislodge its encumbering conservatisms. World ideas never move in simple progressive orbits because of the resistance of the old order that passeth, but yields only, and slowly, to a newer enlightenment. Not only body and mind, but health and disease, and particularly sanity and insanity, are one, and should be joined in hyphenated unity, not set apart in disjunctive contrast.

Neither physician nor psychologist should consider human behavior as divided into bodily behavior and mental behavior, but as united, forever joined in that organic union that conditions strength and weakness alike. There isn't one science of health and another of disease, but hygiene and pathology are specialized perspectives of the same vista; and sanity and insanity[1] derive from the normal and abnormal vicissitudes of the same career; all these assets and liabilities appear in the same statement of how and why we behave as human beings, and misbehave according to the same patterns.

That the closer kinship of medical science is with physics and chemistry as basic data of interpretation is clear enough and has been recognized in some form from the days of the glory of thinking that was Greece, onward. Hot and cold, wet and dry, were mighty words

* Read before the joint meeting of the History of Science Society, New York Academy of Medicine, and Section N of the American Association for the Advancement of Science, held at the New York Academy of Medicine, Dec. 29, 1928.

1. I have developed this concept of sanity-insanity in an article in Current History, December, 1928.

to conjure with in the majestic philosophical juggling to explain the universe, including the insistent phenomena of disease as faulty functioning of physical relations. They were set by nature in the great cosmos and the human frame alike; in the stars and planets, in the seasons, in the continents, in the bodily composition. We may sample one phase of this physical doctrine in its later currency as the "humors" in the story of Jerome Cardan (1501-1576), a learned Neapolitan physician, an amazing combination of the credulity and erudition of that preharveian day. Of him it was said that for all for which his contemporaries thought him wise, we should think him mad; and for what we think him wise, they would have thought him mad. Inveigled to journey to Paris there to meet a distinguished patient, the Bishop of St. Andrews (and where he gazed with awe at the horn of a unicorn as one of the major sights of the city), he was further tempted to his real destination, Scotland. The prelate's ailment had been described as a periodic asthma due to a distillation of the brain into the lungs which left a "temperature and a condition too moist and too cold, and the flow of the humors coinciding with the conjunctions and oppositions of the moon."

With the characteristic prestige that results from finding others in the wrong, Cardan promptly found that the archbishop's brain was too hot and too dry. He put his distinguished patient on a cold and humid diet to resist the attraction of the brain, yet had him sleep on a pillow of dry straw or seaweed and had water dropped on his shaven crown; in addition he presented a regimen of simple food, much sleep, and cold showers. The patient improved, and so did Dr. Cardan's reputation and his purse.

In this wise we retain in the palimpsest of our speech the vestiges of early medical and psychologic guesses, and speak of good humor and bad humor, but are saved by our sense of humor as well as our scientific sense from taking these notions seriously or literally. We merely note in passing that humor and humid as philologic kin derive from the strange vagaries of the human mind seeking explanation in the fluid contents of the body, the blood and secretions that hold the clue to our well being.

Yet we are still divided politically and analytically into "wets" and "drys" and have the same problem of reconciling our principles with our predilections, our psychologies and our prescriptions. The battle of the wets and drys seems to have started with the flood and the bibulous tendencies of the sons of Noah and will doubtless continue until the earth is dried up in the final solar or cosmic desiccation. For this alcoholic reference is not irrelevant in that, to adjust our indulgences and our inhibitions wisely, we must still consult both physician and psychologist, and welcome their agreement.

I am also tempted to add the illuminating incident told by Dr. Singer of a Justice Holt (1642-1710) who, as a young man, finding himself near Oxford without money, secured a week's lodging by curing a landlady's daughter of an ague by writing some Greek words on a scrap of parchment and wrapping it round the girl's wrist to be left there until she was well. Many years after an old woman was brought before him on the charge of sorcery, as she claimed to cure fever-stricken patients by applying a magic bit of parchment. It was his own original label. The justice confessed and the woman, one of the last to be tried for witchcraft in England, was acquitted. Combining a bit of retributive justice with an epitome of the survival and wane of the magic medicine man's art, the incident is worthy of a place in the many glass cases that would form a museum of the psychologic early aids to medical practice.

Inviting as it is to trace the mutual relations and reflections of physician and psychologist by way of these marginal notes on the records of the past, I must not encroach on the space assigned to the central thesis, the desirable and actual relations of the present.

In the living organism the basic reactions have a functional setting and thus appear as physiologic behavior. The mental life, no less than the physiologic, may at bottom be all physics and chemistry; but that recognition offers no adequate basis for understanding, no lever of control. It simply reminds us that the technic of drug therapy, paralleling the intriguing effect of drug action on mental processes, rests on a chemical foundation in the most intricate of all chemical laboratories, the human body; and the problems of drug action, including the psychic poisons, illustrate the joint interest, with the one focus in medicine, the other in psychology. To deny either is to defy nature, to be content to recognize much less than the entire man. An irresponsible denial leads to drugless healing à la Christian science, to absent treatment and thought waves, and the absurdities of addled thinking. An irresponsible drug cult leads to the rival extravagances of "patent medicines" claiming all virtues for quack remedies—and the public chooses between ignoring and ignorance—contrasted cults of pills and wills in meeting human ills. While this adds variety to the human scene, it does little credit to human intelligence. Such are the parasitic growths attendant on the advances of the physician in controlling bodily processes and of the psychologist in commanding mental ones. Even a parody of science implies a compliment.

So here is another meeting ground where physician and psychologist may cultivate a fellow feeling and discuss whether medical follies exceed psychologic follies in latter-day or in earlier vintages. The psychic addict and the drug addict offer comparable problems and overlapping ones. For by the drug route, no less than by fasting and prayer and ascetic denial and ecstasy, have men at all stages sought to transcend their limitations and enter an earthly paradise, too commonly finding a hell of slavery. Yet by the same route have come the blessings of anesthetics, the security of asepsis, and the many delicate technics of correction of physical deficiencies from quinine to insulin; and the end is not yet, though the medical arts far exceed the medicinal one.

Yet all this constitutes their warrant and may be summarized as the physiogenic principle, the influencing of behavior from below. For its type of contribution one may consider twentieth-century wise the story of the glands, thus returning to that early Greek guess that the secretions are the critical determiners of constitution. To read into this any prophetic anticipation of our present knowledge is a mere dramatic indulgence, since the logics of the two conclusions and the resulting practices are cultural ages apart. If the thyroid is the miracle gland, it is so by virtue of the discovery that supplying thyroid deficiency converts the feebleminded cretin to a near normal. By baring the mechanisms of fear and rage, Dr. Cannon has contributed as directly to psychology as to medicine. Yet either is never the whole story; we can allay nervousness but we cannot inject courage and calm by the veins or secretions any more than we can hope to find a drug that will make men truthful. But to recognize that nature provides for our complexity of behavior by the double route of the autonomic nervous system (the older evolutionary product

closer to the vital functions) and of the later crowning mantle of the craniospinal system, the neopallium, makes that provision appear as a prophetic anticipation of the rôles of the physician and the psychologist. This interplay of autonomic and cranial function is nature's own script of psychobiology, which ours is the first generation to read rightly.

Among its lessons is the dominance of the emotional reactions, so much more vital to the significant varieties of behavior than the rational operations that led to their discovery. The academic error of the scholastic psychologists is the enthronement of the logical robot and the neglect of the emotional reality that moves the strings. We thus reach the influence on behavior from above, for which we may substitute the more acceptable term the psychogenic principle. Though we could trace its partial recognition and misreading through the ages in trance, somnambulism, ecstasy, hypnosis, suggestion, faith cure and shrine cure and relic cure and mind cure —and even find in it the secret of what passed for magic in primitive days and what supports testimonials to modern fads—we do well to recognize its rich addition in the freudian formula. For it was a novel and fertile insight to note that the hysterical symptom could be imposed on the physiologic mechanism from above, as though elaborated by motive and reason and the cortical mechanisms of highest and latest evolution. But all this issues only on the condition of that primarily strong emotional stress that is anchored lower down, in the deeper and earlier mechanisms of our vitality.

The freudian story begins with the incapacities, the interferences with normal bodily functions through psychogenic fixation. In Freud's first case, a young woman had a numb arm that resulted from a strained position under the emotional stress of nursing her dying father, which persisted as an hysterical paresis; so did a blurred vision; so did a difficulty in swallowing. The incapacities of shell shock, whether a general locomotor collapse, a localized tremor, or a sensory blindness or deafness, are likewise psychogenic disturbances, presenting, however, the additional freudian motivation of exemption from further danger and shock at the front. The frank, perhaps crudely frank, freudian formula makes it "an escape into illness," yet not a deliberate or conscious malingering. The attendant in the woman's room of a railway station in New York City who developed hysterical deafness may be said to have chosen a wise protection from the bedlam of her environment, were it not that more correctly she is the victim of an unwanted incapacity. Because the incapacity is only of hysterical depth may its relief be alike sudden and accomplished by an offsetting emotional shock. Thus were crutches discarded not only at shrines of old and at Lourdes in our day, but at the announcement of the armistice, which set free anxiety and physical incapacity in the same joyous peal of bells.

The intricacies of the freudian motivation and its mechanisms are far too ramified and detailed for even a summary reference. Observe that one need not be a thoroughgoing freudian to accept something of his version of the psychogenic principle. I find myself in a growing company of psychologists who reject a goodly, even a major, portion of the freudian structure—certainly its ungainly and grotesquely elaborated features—and yet recognize in it a powerful microscope, if properly adjusted, for the analysis of human behavior. Observe that in all that I cited there is no element of sex, but there is of emotional stress, of upsetting fear and sympathy. That thwarted and strident sex urges may act both physiogenically and psychogenically to the maladjustment of the individual is truer by reason of the freudian emphasis and exaggeration. If sex is but the ramification of glandular action, it is the physician's business; if it is a way of living emotionally and in the larger sense psychically, it is at least as much the psychologist's affair. And moralist and sociologist and the guardians of law and order likewise claim jurisdiction, even to making illegal knowledge which the physician might on occasion prescribe.

There could be no more cogent example of the interpenetrating territory of medicine and psychology than the freudian movement. Rejected by the medical fraternity as unorthodox, not to say illegitimate, the freudian waif was deposited at the door of psychology and, when grown to a lusty youth, adopted, though with reservations. Its entire history is unfortunate. It was born in the clinic—an unfortunate birthplace for any doctrine with so wide and so personal an application; it was reared in distracting controversy; it traveled on the visé of psychoanalysis—a procedure as open to abuse as any narrow cult, and more so. While for some patients being "psyched" may be a step to being cured, to others it may amount to being infected, and the infection may spread. Psychoanalysis is but one application of freudian psychology, and the freudian procedure but one form of analysis. The freudian psychology will be tested and found valid or wanting according to its general value in explaining human behavior, human history, human relations and human aberrations particularly. For the moment it stands as a convincing demonstration of the modern convergence of the physician and the psychologist.

For ages sharing interest in principles and academic cooperation, physician and psychologist now find themselves for the first time fellow practitioners. They have become so through the appalling recognition that in our strenuous order of living, nervous and mental disorders outnumber all other forms of ailment. Apparently this is the psychoneurotic age; and one dismal prophecy announces that, if the increase of psychoneuroses and mental disorders continues for another generation, there will be about enough mentally fit individuals in the community to take care of the mentally unfit, and the human race will have no other occupation.

To avert this disaster requires understanding and the instruments of control. What it means in terms of my major thesis may be briefly suggested. It means that the originally adequate adjustment between the autonomic urges, their stimulations and satisfactions, and the cortical control through accepted social patterns of behavior, has become violently disturbed. It isn't so simple a matter as repression, wise or unwise, though that plays a part; it is the total intricacy of conflicting motives, the greater anxieties, the jarring tensions, the more ambitious strivings, the eager rivalries, the manifold menaces of failure, the resulting thwartings, disappointments, inferiorities, that present too violent a pace of living for the neurotically disposed to endure. They break at whatever may be the weakest point of their maladjustment; most of it (in my opinion) is inherent disposition, yet is aggravated to the proportions of disaster by unfortunate circumstances and unwise management.

The two great orders of psychoneurotics are the hysterical and the neurasthenic; the one restless, agitated, explosive, unstable, overemotional; the other crippled by fear, hesitant, distressed, with incapacitating aches and paralyzing dreads. In neither is there peace, the

calm needed for living the adjusted life. There are the smaller armies of the psychasthenic and the psychopathic personalities, and more on the borderland beyond which loom the more serious so-called insanities. The inquiry as to the causes of this vast increase in the minor disqualifications, the slighter deviations from a normal state of adjustment needed to carry on under the present stressful occupations, must give way to the recognition of its existence and that to provisions for the care and restoration of this vast army of the maladjusted, of the mentally unfit. For one person who seeks medical aid there may be five, there may be ten, who do not. Yet these patients at large need help and don't know where to turn. A sympathetic neurologist offering his services to those in mental distress could stand at any crowded crossing of a metropolis and hold a busy clinic among the passers-by. It would almost appear as though the world has become one vast clinic of nervous troubles and mental disorders. The modern Diogenes is looking for a normal man.

It is this situation that itself proposes a closer relation of physician and psychologist and a more professional one. It is true that the proposal covers but one section of human ills, yet its orbit includes the welfare of the most cherished functions and the most significant. We prize bodily health for mental vigor.

What every large community needs is a "misery clinic"—not a good name but a neutral one. The procession of the maladjusted and the incapacitated and disqualified is made up of the handicapped rather than the crippled. The largest divisions are the fear ridden, the shy, withdrawing, friendless, helpless, lacking confidence, fearing failure, never showing their best, discouraged, and always tired, weary, listless. The acute point of attack may be self consciousness, or sex consciousness, or a flushing or choking or stammering or palpitation or body ache or sense of confusion or of collapse or of impending disaster generally. They are assured that they are physically sound, but the assurance doesn't carry. They are depressed; life has lost its zest; they live timid, introverted, worried, gloomy lives; and the morning is lead and gall, ushering in a day of anxious misery.

Under these circumstances it is intelligible that they snatch at every straw, and that those seeking whom they may devour find a large crop of victims. The prize held out is health and vigor and confidence and success and command of powers. The motley advertising pages of journals claiming to remake mind and muscles and repair what nature failed to supply are one of the most characteristic and discouraging documents of the times; they defeat the combined efforts of physician and of psychologist, but their appeal is more directly to psychic failing because of its prevalence and distress. The insult of it all is deeper to the psychologist than to the medical man.

The class thus appealed to is alike numerous and appealing; theirs is the distress that seeks aid. There may be as many who need mental readjustment but do not seek it, the unstable trouble makers drifting in their jobs and drifting to the status of the jobless and the delinquents. There is the home life and the social life or the lack of it to consider; the conflicts of urges within and love relations galore from the vulgar to the tragic among the undersexed, the oversexed and the falsely sexed. One neurologist finds two types of patients in his misery clinic: those who come because they are not married, and those who come because they are. In view of the immensity of this population of the maladjusted, the love lorn and love torn and love worn, the queer misfits and mildly psychopathic variants and temperamentally difficult and high-strung—the neurotic and erotic and quixotic and exotic in our midst—our attempts to meet the conditions that their presence entails are pitiably inadequate, almost nonexistent. They are so because, unless marked in their abnormality, these handicapped are not regarded as requiring medical care, and the psychologist is new at the job and unrecognized. Hence the need of a further convergence of the two professions.

The conventional type of clinic doesn't meet their needs; they can't be handled *en masse* and by routine, and the personal intensity of their maladjustment—often almost delusional in its perversion—makes them recoil from the clinical approach. They are often rich in pride and sensitiveness and poor in every other resource, with financial poverty as a further handicap to their restoration.

What is wanted is a board of consultants composed of physicians, psychologists, social workers and laymen (especially laywomen) all adding to what professional competence they possess an extraordinary common sense, patience and sympathy, first to diagnose and then to assign, a course of treatment; to stand by, and then to follow through the rescue work to its consummation. There may well be hundreds of such boards of normalizers, and all will be kept busy in a city of millions. The day is past when the physician is the sole healer of sick bodies or the minister the sole healer of sick souls. The cry of the hour is a neurologic distress, and the need of the hour is the organization of the wisdom of the physician and the psychologist.

143 East Forty-Ninth Street.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

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SATURDAY, MARCH 2, 1929

METHIONINE

The dominant interest awakened by the amino-acids in any consideration of the metabolism of proteins in the body represents one of the newer developments of biologic chemistry. Proteins, in the course of digestion, are disintegrated into their amino-acid components, which are absorbed as such and carried to the tissues, where they may experience a variety of chemical transformations, now being reconstructed into new protein or other body constituents, now further broken down and used as fuel or converted to simpler derivatives, such as sugar. Added to this story of the physiologic changes undergone by the amino-acids is the well established fact that some of them which are indispensable to the nutritive processes and to the growth of the organism cannot be synthesized de novo in the body and hence must be supplied somehow in the dietary intake. Perversions in the metabolism of the amino-acids present some of the outstanding instances of chemical pathology.

The presence of sulphur in the protein molecule has long led to the natural assumption that the latter must include some sulphur-containing amino-acid. The discovery of cystine as a hydrolytic derivative of proteins has justified the hypothesis. Cystine is demonstrably essential to protein synthesis in the living organism. Cystinuria represents an anomaly in the metabolism of protein. Reasons have not been wanting for the belief that cystine does not represent the sole form in which sulphur is built into the structure of proteins. Hence considerable interest was aroused a few years ago when Mueller [1] isolated from casein a new sulphur-bearing amino-acid, $C_5H_{11}O_2NS$, in a yield of somewhat less than 0.5 per cent. About the same quantity was obtained from egg albumin, and smaller amounts are present in edestin, wool and gelatin. That the substance is a primary cleavage product of protein, and not foreign to the body, was indicated also by its oxidation after administration to an animal, when the sulphur appears in the urine as inorganic sulphate.[2] The same amino-acid was subsequently found by Odake.[3]

Barger and Coyne [4] of the Department of Medical Chemistry at the University of Edinburgh have succeeded in synthesizing the substance discovered by Mueller and in determining its precise chemical constitution. The newly recognized protein derivative is γ-methylthiol-α-aminobutyric acid; and the investigators have united in proposing the less cumbersome designation "methionine" for the substance, on the basis of its characteristic structural groupings. Thus there is added one more item to fill the narrowing gap in our knowledge of the structural composition of the foremost group of proximate principles, the proteins. Great difficulties had to be overcome before this new accomplishment was secured. All the investigators concerned merit congratulations for their important contributions.

1. Mueller, J. H.: A New Sulphur-Containing Amino-Acid Isolated from the Hydrolytic Products of Protein, J. Biol. Chem. **56**: 157 (May) 1923.

2. Mueller: J. Biol. Chem. **58**: 373, 1923.

3. Odake: Biochem. Ztschr. **161**: 446, 1925.

4. Barger, G., and Coyne, F. P.: The Amino-Acid Methionine: Constitution and Synthesis, Biochem. J. **23**: 1417, 1928.

5. Marriott, W. M.: Anhydremia, Physiol. Rev. **3**: 275 (April) 1923.

EFFECTS OF LOSS OF GASTRIC JUICE

The profound significance of undue losses of water from the body has not been adequately appreciated until recent years. In reviewing the subject, Marriott [5] has pointed out that the organism possesses an available store of water which exists for the greater part in the muscles and in the skin, and which can be drawn on to some extent before any considerable degree of desiccation of other parts of the body occurs. As larger amounts of water are withdrawn a drying out of all parts of the organism takes place, but the degree of desiccation varies markedly in the different organs. The withdrawal of fairly large amounts of water from the muscles (from 10 to 20 per cent of their total water) fails to impair their function, as determined by electromotor activity of the excised muscles, nor is there any apparent morphologic change. The skin also seems to be but little damaged functionally or structurally by the loss of a considerable portion of its water content. In the case of the blood, conditions are quite different. Here, Marriott notes, desiccation to even a slight degree results in impairment of the circulation and, as a result, in secondary functional disturbances of almost every part of the body. There is an alteration in the metabolic processes and, when sufficient concentration of the blood occurs, a disturbance of the heat-regulating mechanism. As most of the observed physiologic effects of loss of water are referable to the concentration of the blood, and as the condition of the blood serves as a fair index of the degree of dehydration of the body as a whole, the subject of desiccation in general may, Marriott concludes, well be considered from the standpoint of desiccation of the blood, or anhydremia.

There are conditions, however, in which the deficits referred to do not involve the loss of water alone. When fluid is withdrawn from the body through diarrheal changes or in severe recurrent vomiting, dissolved substances are lost at the same time. There are growing indications that deprivation of the latter may sometimes be more serious than the loss of water alone. As a consequence, the normality of the blood and tissues is by no means always adequately restored through administration of water. Marriott has reminded us that as there is a loss of mineral salts from the body in anhydremia there is an advantage in giving salts as well as water. It has been found that water is much better retained in the body when salts are given at the same time.

McIver and Gamble [6] have championed the view that when there is a depletion of the total ionic content of the plasma and the interstitial fluids—when, for example, sodium and chlorine are withdrawn in some way from the body—this will be accompanied by an approximately parallel loss of water with the result that a normal total ionic concentration tends to be sustained at the expense of reduction of volume. That is, as they view it, dehydration is regarded as the result of the loss of electrolytes; and an important corollary of this view is that dehydration cannot be repaired by the administration of water alone: an attempt to restore and sustain the original volume of the blood plasma and of the interstitial body fluids must include replacement of the lost electrolytes. An additional theoretical point has been brought out by Gamble and Ross: that loss of sodium rather than loss of chloride ion is the significant factor in determining the extent of dehydration, since the loss of chloride ion is compensated for within the body fluids by a corresponding increase of bicarbonate ion. McIver and Gamble are inclined, in fact, to regard the fatal effects of loss of the digestive secretions such as occurs in simple pyloric or upper intestinal blockage as the result of extensive withdrawal of inorganic substances, chiefly sodium and chloride ion, from the blood plasma and the interstitial body fluids. This simple explanation is to their minds so sufficiently indicated as to make unnecessary the hypothesis of a toxin absorbed from the gastrointestinal tract or of the loss in the digestive secretions of some vitally important organic substance.

A somewhat comparable condition seems to have been demonstrated experimentally in the department of surgery at the University of Chicago by Dragstedt and Ellis,[7] who have succeeded in bringing about continuous complete evacuation of gastric contents in animals. The total loss of the gastric secretion from the body causes death with symptoms of weakness, anorexia, oliguria and profound depression. Accompanying these symptoms and proportionate to their severity occurs a prompt fall in blood chloride, an increase in the carbon dioxide combining power of the plasma, an increase in the p_H, and a late increase in the nonprotein nitrogen and urea nitrogen. The symptoms may be relieved and the chemical condition of the blood returned toward the normal by the intravenous injection of Ringer's solution or 0.9 per cent sodium chloride solution. The Chicago experiments show the surprising fact that in an isolated stomach there may be excreted by the gastric mucosa in twenty-four hours more than twice the calculated amount of chloride in the circulating blood. It is this loss of chloride that is chiefly responsible for the death of the animal. The gastric mucosa can continue to secrete gastric juice of high free and total acidity even when the blood chloride has been reduced to less than a third of its normal concentration. In conditions of severe hypochloremia and partial anhydremia, the secretion of urine is greatly lessened. Thirst does not manifest itself, however, until saline solutions are returned to the circulation, whereupon the desire for water is quickened. If one remembers that at least 90 per cent of the osmotic pressure of the blood is due to the electrolytes therein it is easier to appreciate what their loss means for the maintenance of osmotic equilibrium. The time has come to give due thought to factors in addition to corpuscle count, water content or hydrogen ion concentration when the composition of the circulating medium is threatened with an upset. Sodium and chlorine may need consideration when restorative measures are contemplated.

6. McIver, M. A., and Gamble, J. L.: Body Fluid Changes Due to Upper Intestinal Obstruction, J. A. M. A. **91**: 1589 (Nov. 24) 1928.

7. Dragstedt, L. R., and Ellis, J. C.: Fatal Effect of Total Loss of Gastric Juice, Proc. Soc. Exper. Biol. & Med. **26**: 305 (Jan.) 1929.

THE SUGAR IN HUMAN BLOOD

Nowadays, considerations of abnormalities in the metabolism of carbohydrates usually begin with a reference to the content of sugar in the blood. This newer mode of approach to the problems of diabetes, for example, is due primarily to the development of refined methods of chemical analysis that are applicable to small quantities of material. Interest in data on glycosuria has become secondary to the study of blood sugar values, particularly where questions of incipient or potential diabetic states are involved. In the effort to simplify the analytic procedures, a large number of methods have been developed by biochemists both in this country and abroad. The outcome has been somewhat disconcerting, for the reports on percentages of sugar vary in accordance with the method employed. For this reason, even if other considerations are left out of account, it is unwise, as Joslin has pointed out, to cumber clinical statistics as is so often done with records to the third decimal place.

One reason for the discrepancies that have been so confusing lies in the now recognized fact that the commonly used methods for determining blood sugar

yield higher values than the sugar actually present. This is due to the presence of substances—nonsugars—that exert a reducing action like sugars on the reagents currently employed in the estimation of sugars. The alkaline copper solutions are the oldest types of these reagents. Their value depends on the circumstance that sugars bring about reductions in the test solutions, the extent of the reduction under selected conditions being a measure of the quantity of sugar involved in the reaction. Most of the newer colorimetric processes depend on a comparable reducing action. A further complication has arisen through the discovery that there may be a decided difference between the reduction values for the blood corpuscles and the plasma, thus suggesting an unequal distribution of sugar between the formed elements and the fluid of the blood. It has been asserted that whereas the relative concentration of sugar in the corpuscles ordinarily rises and falls in remarkable parallelism with that of the plasma, in diabetic subjects the sugar fixation by the corpuscles is in some way inhibited. One investigator has even stated that he has demonstrated in the plasma of diabetic patients the existence of a hormone (glycemin) which lowers the "sugar binding or sugar fixing ability" of the erythrocytes.

The most recent investigations in this field have had as their object the rigorous discrimination between true sugars and other reducing agents in the blood. Dextrose is readily fermentable by yeast and can thus be eliminated from the fluids under examination. The true sugar values are represented by the differences between the total reduction of suitably prepared blood filtrates and the reduction values after fermentation with yeast. Through application of such methods, Somogyi [1] reported that the amount of reducing nonsugars in human blood is found to be uniform, averaging 27 mg. to the hundred cubic centimeters of blood in terms of dextrose, as determined by the Shaffer-Hartmann method with the modified reagent. It is independent of the blood sugar level, and rises above the normal only in cases of high nitrogen retention. The distribution of reducing nonsugars in corpuscles and plasma is unequal; the average value for corpuscles is 47 mg., for plasma 10 mg. In human blood the subtraction of 27 mg. from the apparent sugar, as determined with the modified Shaffer-Hartmann reagent, gives the true sugar with a maximum error of ± 4 mg. In his latest studies Somogyi [2] has demonstrated that the distribution of blood sugar between corpuscles and plasma can be determined only from true sugar values. The substitution of apparent sugar for true sugar leads to erroneous conclusions. The relative sugar content of corpuscles is the same in blood of diabetic and nondiabetic subjects; thus, the conclusion that the sugar fixation by corpuscles is inhibited in the blood of diabetic patients is erroneous. The distribution of the sugar is unaffected by changes in the blood sugar level caused by alimentary factors.

1. Somogyi, Michael: Reducing Nonsugars and True Sugar in Human Blood, J. Biol. Chem. **75**: 33 (Oct.) 1927.
2. Somogyi, Michael: Distribution of Blood Sugar Between Corpuscles and Plasma in Diabetic and in Alimentary Hyperglycemia, Arch. Int. Med. **42**: 931 (Dec.) 1928.

Current Comment

THE SHEPPARD-TOWNER EXTENSION BILL

The Newton bill (H. R. 14070) to enlarge and perpetuate the activities of the Children's Bureau under the Sheppard-Towner Act seems doomed to die in the Committee on Interstate and Foreign Commerce of the House of Representatives, March 4, when the Seventieth Congress expires by constitutional limitation. To take its place, however, Representative Newton, February 19, introduced a bill (H. R. 17183) to revivify the Sheppard-Towner Act and continue it in force for five years after the date set by law for its repeal, June 30, 1929. The Committee on Interstate and Foreign Commerce, February 26, reported this new bill for passage, but, in view of the short time elapsing before the dissolution of Congress, enactment seems impossible. If it is not enacted, and if such legislation is to be further considered, a new bill will have to be introduced after the Seventy-First Congress convenes. This, it is understood, will be about the middle of April.

INCREASED TARIFF ON SURGICAL INSTRUMENTS

On behalf of certain surgical instrument makers, Mr. Charles J. Pilling of Philadelphia recently urged before the Committee on Ways and Means of the House of Representatives that the duty on such instruments be increased. The law now imposes a duty of 45 per cent ad valorem. Mr. Pilling proposed that this duty be raised to 75 per cent ad valorem, plus certain specific duties, and that hypodermic and dental needles be included in the schedule as surgical instruments. The added specific duties would vary from 1 cent each on articles valued at not more than 25 cents a dozen to 60 cents each on articles valued at more than $24 a dozen. In justification of this increase, Mr. Pilling represented that at least 90 per cent of the surgical instruments used in this country are imported, and he implied that the increased duty would build up an industry that could supply all surgical instruments needed by the United States, in war as well as in peace. Hospital expenditures for surgical instruments, it was stated, average only about one fourth of 1 per cent of their total annual expenditures, and the surgical instrument makers represented at the hearing seemed to think that the increased duty would not add materially to the burdens of such institutions. Purchases by individual physicians were represented as a minor factor in the surgical instrument trade. The Board of Trustees of the American Medical Association was unable, however, to find evidence that an increased

duty such as was proposed could be made without adding substantially to the expenses of hospitals and of the practice of medicine and surgery. Evidence was not found to show that the increased expense to which hospitals and the medical profession would be subjected could reasonably be depended on to expand the surgical instrument industry in the manner suggested. The Board of Trustees therefore filed a protest with the Committee on Ways and Means against the proposed increase in the duty on surgical instruments. Physicians interested in this matter as individuals or as organizations, and the responsible officers of hospitals, if they desire to avoid the payment of such increased prices for surgical instruments as may reasonably be expected from the proposed increase in the duty on such instruments, will do well to file protests with the Committee on Ways and Means of the House of Representatives and with their respective Representatives.

LIPEMIA AND THE OSMOTIC PRESSURE OF THE BLOOD

Although the fluids that form the immediate environment of all the cells of the living body are to some extent in a state of continual flux as a result of the contribution and withdrawal of substances involved in metabolism, the organism attempts to provide adjustments that will insure a certain constancy of conditions. Thus there are adjustments that tend to maintain the normal acid-base equilibrium and prevent extreme alterations of reaction in the cells and tissue juices. Furthermore the osmotic pressure must be of considerable importance in regulating the normal exchanges of the cells with their surrounding fluid. The osmotic pressure of the blood depends on its molecular concentration. Electrolytes form no small part of the latter, but it is also known now that the plasma proteins are essential in the maintenance of the osmotic pressure. Indeed there is a rough proportionality between the colloid osmotic pressure and the concentration of the protein. There are at least two clinical conditions that may lead to depletion of the serum proteins. They can be lost directly by heavy hemorrhages or, in patients with nephrosis, by passage through the cells of the kidney into the urine. In either event there must result a disturbance of the mechanism for the maintenance of the colloid osmotic pressure of the blood. Various observers have noted that lipemia commonly follows the loss of protein from the blood. The possible significance of the heretofore unexplained phenomenon has been pointed out by Fishberg[1] of the Beth Israel Hospital in New York. She has noted that the osmotic pressure per gram of protein is higher in lipemic blood than in blood diluted to the same concentration of protein, and this difference becomes apparent at the same time that the total lipid content of the blood starts to rise. According to Fishberg's interpretations, the intimate relationship between the fall of the proteins, with its consequent lowering of the osmotic pressure of the blood and the rise of the serum lipids, suggests that these lipids may be mobilized in an effort to work against the falling osmotic pressure. If there were such a compensatory lipemia, one would expect that the serum containing a relatively high proportion of these fatty substances would show a higher osmotic pressure than a similar serum at the same protein concentration made by dilution of the normal blood. This seems to be the case; and it affords a new illustration of the protective devices by which the organism seeks to maintain the integrity of its important physiologic adjustments.

1. Fishberg, Ella H.: The Relations of the Serum Proteins and Lipids to the Osmotic Pressure, J. Biol. Chem. 81: 205 (Jan.) 1929.

Association News

THE PORTLAND SESSION

The Scientific Exhibit: Time Limit for Applications for Section Exhibits

As has been announced previously, there will be two section exhibits in the Scientific Exhibit; namely, the exhibits under the auspices of the Section on Dermatology and Syphilology and the Section on Radiology. Applications of participants in any of the section exhibits must be in the hands of the committee chairman by March 15. For the Section on Dermatology and Syphilology, address Dr. Fred D. Weidman, Thirty-Sixth Street and Hamilton Walk, Philadelphia, Pa.; for the Section on Radiology, Dr. P. M. Hickey, University Hospital, Ann Arbor, Mich.

MEDICAL BROADCAST FOR THE WEEK

The American Medical Association Morning Health Talks and Evening Health Hints from Hygeia

The American Medical Association broadcasts daily at 10 o'clock in the morning, central standard time, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of March 4 to 9 will be as follows:

March 4. "The Delicate Task of Child Training," by Dr. R. G. Leland.
March 5. "The Evolution of Quackery," by Dr. Morris Fishbein.
March 6. "The Lost Art of Play," by Dr. R. G. Leland.
March 7. The Rôle and Source of Vitamins," by Dr. James O. Nall.
March 8. "Health Superstitions of the Italian Immigrant," by Dr. R. G. Leland.
March 9. "Boycotting the Hair Dyes," by Dr. R. G. Leland.

Evening Health Hints from Hygeia at 8 o'Clock, Central Standard Time

March 4. Scientific Attitude Toward Health.
March 5. Spring Cleaning.
March 6. Milk for Working Men.
March 7. Giving the Deafened Child a Chance.
March 8. Precautions for the Milker.
March 9. Removal of Moles.

Vitamin A and Calculi.—The formation of calculi, particularly urinary calculi, has long excited interest. Osborne and Mendel about eleven years ago directed attention to the fact that often calculi appear in the urinary tract of rats used for nutrition studies, and that whenever such calculi were found it was where there had been an inadequate supply of vitamin A for some time. Fujimaki of Tokyo has more recently shown that rats fed with a diet deficient in vitamin A for a long time developed first bladder stones, then kidney stones, and finally stones in the bile ducts. The urinary stones are phosphatic, while the biliary stones are chiefly cholesterol. Deficiency in vitamin B apparently has nothing to do with the formation of stones, nor does the deficiency in protein in the diet seem to have this effect. After the stones have formed, as demonstrated by roentgenologic examination, they would in some instances disappear by altering the diet and including a large quantity of the fat soluble vitamins. Such treatment may in certain instances have a clinical bearing.—Horsley, J. S.: The Influence of Physiologic Research on Modern Surgery, *Virginia M. Monthly*, February, 1929.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Bill Introduced.—House bill 58 provides that any one failing to conform to a quarantine shall be guilty of a misdemeanor.

Bills Passed.—Senate bill 8, creating a board of orthodontia examiners, consisting of the board of dental examiners and two practicing orthodontists, has been passed by the house and the senate. Senate bill 22, regulating the distribution and sale of caustic or corrosive acids and alkalis, has been passed by the senate.

ARKANSAS

Bills Passed.—Senate bill 55 creates a state board of examiners in the basic sciences to examine all applicants to practice any branch of the healing art, in anatomy, physiology, chemistry, bacteriology and pathology. House bill 124 creates a state board of health of nine, which appoints from its number a state health officer to be approved by the governor.

Bills Introduced.—Senate bill 226 and house bill 308 would levy an annual occupational tax of $25 on physicians, dentists, osteopaths, chiropractors and embalmers. Only one half of the amount named would be collected from one whose professional income for the preceding year did not exceed $1,000. House bill 159 creates a board of barber examiners and regulates the practice of barbering.

CALIFORNIA

The Lane Lectures.—The next series of Lane lectures will be given at Stanford University School of Medicine, San Francisco, by Prof. Walther Straub of Munich on (1) recent developments in narcosis, April 15; (2) narcotics as a means of enjoyment in theory and practice, April 16; (3) pharmacology of heavy metals, April 17; (4 and 5) chemistry and pharmacology of digitalis and its allies, April 18 and 19.

Plague Infected Rat in Monterey County.—A dead rat removed from a dump, one mile north of the Del Monte summer training camp of the reserve officers training corps and one mile northeast of the Del Monte Hotel, was found positive for plague infection, January 26, by the state bacteriologic laboratory, according to the director of public health of California in a report to the U. S. Public Health Service.

Society News.—Dr. Samuel Ayres, Jr., addressed the Pacific Physiotherapy Association, Los Angeles, January 23, on treatment of skin diseases by light therapy.——About 140 persons attended a banquet, January 23, at the Potrero Country Club, Los Angeles, given by Drs. Edward J. Cook and Albert W. Moore in honor of Dr. Clarence W. Pierce, who has retired after thirty years in practice. The toastmaster was Dr. Jesse Lee Hagadorn. Among the guests were Drs. Allen B. Kanavel, Chicago, and Edward M. Pallette, recent president, Los Angeles County Medical Association. On the same day, ninety-five members of the Southern California Medical Golf Association played the monthly tournament at the Potrero Country Club; Dr. Louis D. Cheney made the lowest gross score in class A and Dr. John W. Shuman the lowest net score. The February tournament of the Southern California Medical Golf Association was played at the Fox Hills Country Club. ——The San Francisco County Medical Society was addressed, February 5, by Dr. Helton Godwin Baynes, London, England, on "Value of Psychologic Concepts in the Practice of Medicine," and by Dr. LeRoy Crummer, Omaha, on "The Necessity of a Fad." The section on surgery of the society was addressed, February 21, by Drs. Charles L. Scudder, Boston, on "Modern Organization for Treatment of Fractures"; Burton J. Lee, New York, "Five Year Results in Treatment of Carcinoma of the Cervix with Radium and X-Ray," and Dr. Bowman C. Crowell, Chicago, "Organized Clinical Research of National Scope."——Sir Arthur Newsholme of London, England, lectured at the University of California, January 25-26, on "Dying Diseases" and "The Good Samaritan Up to Date." ——Dr. William F. Cheney, San Francisco, has been elected president of the Commonwealth Club of California for the ensuing year.——The Los Angeles Surgical Society was addressed, February 8, by Dr. Harry M. Voorhees on "Appendiceal Abscess," and by Dr. Halbert W. Chappel on osteomyelitis.——The Los Angeles County Medical Association was addressed, February 9, by Dr. Reuben Peterson, professor of obstetrics and gynecology, University of Michigan Medical School, Ann Arbor, on "The Determination of Risks in Gynecologic and Obstetric Patients"; at the dinner preceding the meeting, Dr. Peterson was made an honorary member of the association.——The Humboldt County Medical Society, Eureka, was addressed, January 22, by Dr. John A. Lane on "Arrhythmia of the Heart."——Dr. Edwin L. Bruck, San Francisco, addressed the San Joaquin County Medical Society, Stockton, recently, on "The Syndrome of Coronary Occlusion."

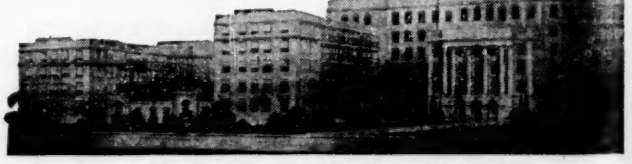
COLORADO

Bill Passed.—House bill 4, creating a state board of beauty culture examiners and regulating the practice of beauty culture, has been passed by the house.

Bill Introduced.—Senate bill 292 provides that a duly licensed physician in this state or other states shall not, without the consent of his patient, be examined in court as to any information acquired in attending the patient which was necessary to enable him to prescribe or act for the patient.

CONNECTICUT

Yale's New Medical and Pediatric Laboratory.—President Angell of Yale University announced, February 19, that the General Education Board, New York, had given $2,000,000 for a medical and pediatric laboratory and for a dispensary and service unit on the grounds of the New Haven Hospital, which is affiliated with Yale University School of Medicine. The new building will become the center of a modern group which is gradually replacing the old buildings of the New Haven Hospital, whose original building was erected in 1833. The modern buildings already erected represent an investment of more than $4,000,000. The gift of the new laboratory and central unit is the third recently received for hospital and medical school buildings, and brings the amount available for



new construction to $4,100,000. Last week Yale announced a gift of $1,500,000 for the Institute of Human Relations, and construction of the $600,000 Raleigh Fitkin Memorial Building will be undertaken shortly. Modern buildings already up are the Brady Memorial Laboratory, the Sterling Hall of Medicine, the private pavilion of New Haven Hospital, the Boardman Administration Building, the Farnam Memorial Building, and Lauder Hall. The portal of the new clinic building will be the main entrance to New Haven Hospital; thus time will be saved and confusion avoided by having a single point of admission from which each patient may be directed to his destination. The medical and pediatric laboratory will join the central unit on the north, and the medical and pediatric pavilion will adjoin the medical and pediatric laboratory. With all of this construction, every precaution is being taken to avoid any annoyance which might interfere with the care of patients in the hospital. The picture shows a portion of the proposed construction, with the clinic building in the center facing Howard Avenue. The second wing from the left is the Raleigh Fitkin Memorial Pavilion, which will be started in March.

Bills Introduced.—House bill 605 provides that all duties now performed by the coroners of the counties shall, after July 1, 1929, be performed by the department of state police. House bill 614 provides that naturopathic physicians shall be subject to the rules and regulations that govern other physicians in the making and filing of certificates of death, in the control of contagious diseases, and in other matters pertaining to public health. Senate bill 237 would permit a licensed naturopath to take an examination to practice chiropractic without being a graduate of a chiropractic college and would permit a licensed chiropractor to take an examination to practice naturopathy without being a graduate of a naturopathic institution. Senate bill 240 excepts from payment of the annual registration fee all persons practicing any branch of the healing

art who have retired from practice, or who have moved out of the state but desire to retain registration with the state department of health; midwifery, chiropody and nursing are added to the list of those professions required to be registered. Senate bill 44 provides for the repeal of the statute against birth control. Senate bill 67 appropriates $420,000 for the state tuberculosis commission for buildings and equipment at Laurel Heights sanatorium at Shelton, the Seaside sanatorium at Niantic, and the Undercliff sanatorium at Meriden. Senate bill 147 provides for the reporting to the state department of health by physicians of certain occupational diseases, and makes such reports admissible in courts or compensation courts. Senate bill 236 requires the approval of the state board of health before the erection of any vault, crypt or mausoleum. Senate bill 242 appropriates $10,000 to enable the state department of health to arrange places of detention for persons with communicable diseases who refuse to conform to present statute requirements or for whose detention no suitable provisions are available. Senate bill 243 amends the present law relating to optometrists by requiring attendance for three years in a school of optometry and by limiting the use of the word "doctor" to the appending of the letters "O.D." or other letters indicating the person named to be an optometrist. Senate bill 245 amends the law relating to midwives by permitting midwives to use the fluidextract of ergot, which may be given in a teaspoonful dose only after the expulsion of the intact placenta. House bill 405 provides that every child may be required by the board of health to be vaccinated before being permitted to attend a public school except when a certificate has been presented from a physician showing the inadvisability of vaccination or from the parents showing conscientious objections. During an actual or threatened smallpox epidemic, school authorities may nevertheless debar unvaccinated pupils. House bill 408 provides for the registration with the state board of health annually of all persons desiring to practice medicine, surgery, midwifery, chiropractic, naturopathy, chiropody or nursing. Dentists, osteopaths, optometrists and Christian scientists are exempt.

FLORIDA

Dr. **Parkinson Goes to Philadelphia.**—Dr. William N. Parkinson, St. Augustine, has been appointed medical director of the Samaritan and Garretson Greatheart hospitals of Temple University, Philadelphia.

Dr. **Munch Convicted Again.**—George A. Munch, M.D., former secretary of the Florida Eclectic Medical Examining Board, was convicted a second time in federal court at Tampa, February 16, on charges of selling fake medical diplomas and licenses, and again sentenced to serve five years in a federal penitentiary and pay a fine of $1,000. Munch was similarly sentenced in his first trial two years ago, but obtained a rehearing on appeal. Munch was taken to the county jail. His bond was fixed at $10,000. The judge indicated that he would consider a written motion for a new trial. For further information see Medicolegal Abstracts of THE JOURNAL, Feb. 2, 1929, page 417, and Florida News, March 31, 1928, page 1047, and Sept. 18, 1926, page 946.

GEORGIA

Dr. **Salant Resigns.**—Dr. William Salant has resigned as head of the department of physiology and pharmacology at the Medical Department of the University of Georgia, effective at the expiration of the present academic session, and will henceforth devote himself to research at the pharmacologic section of the Biological Laboratory, Cold Spring Harbor, Long Island.

Free Graduate Instruction in Obstetrics.—Georgia physicians in the eleventh congressional district will have an opportunity, April 8, to attend a short course in obstetrics provided by the state health department. Arrangements have been made for Dr. James R. McCord, professor of obstetrics and gynecology, Emory University School of Medicine, to visit the congressional districts of Georgia for a week instructing physicians. He will take along moving pictures of obstetric work from some clinics of the country and other equipment. Every physician of the district is invited to attend. The second course will begin in the third district, May 13. Other announcements will follow.

Society News.—The Fulton County Medical Society, Atlanta, was addressed, February 7, by Dr. Edgar G. Ballenger on suprapubic prostatectomy under local anesthesia.——According to the Atlanta *Constitution*, the public health nursing department of Atlanta gave "medical examinations" to 50,442 children during 1928 under the supervision of the city health department.——Among others, Dr. Lamartine G. Hardman, governor of Georgia, addressed the annual meeting of the Georgia Health Officers' Association, Atlanta, January 25.——The infant mortality rate in Savannah for 1928 was 101.6 per thousand live births; the death rate of mothers per thousand live births was 13.7. There were sixty-seven cases of Brill's disease in Savannah last year with one death, seventy-three cases of smallpox with no deaths, thirty-four cases of typhoid with seven deaths, and 166 cases of malaria with four deaths.——The Fulton County Medical Society, Atlanta, was addressed, February 21, by Dr. William A. Smith on "The Ketogenic Diet in Epilepsy."

IDAHO

Bills Enacted.—The following bills have been passed by the house and the senate and approved by the governor: House bill 30, prohibiting the use in any advertisement of the title of doctor or professor, or signs or any abbreviations thereof, leading to the impression that the advertiser is lawfully engaged in the healing art, when he is not duly licensed to practice the healing art. House bill 36, amending the law relating to quarantine by providing that the local health officer may remove contacts from quarantine within shorter periods than specified in the law, if they have been immunized and there is no further danger of spreading the disease.

ILLINOIS

Bill Introduced.—House bill 157 amends the narcotic act so as to prevent the sale or distribution of so-called loco weed.

Society News.—The Franklin County Medical Society, Ziegler, was addressed, January 31, by Dr. Norman N. Tobias, St. Louis, on "Modern Diagnosis and Treatment of Syphilis."——Dr. Vernon C. David, associate professor of clinical surgery, Rush Medical College, Chicago, the invited guest of the Kansas City Southwest Clinical Society at its March 12 meeting, will address the evening joint meeting with the Jackson County Medical Society on "Diagnosis and Management of Gallbladder Diseases" and "Management of Some Lesions of the Large Bowel."

INDIANA

Bill Passed.—The house has passed house bill 92, broadening the power of the optometry board to prosecute the unlicensed prescription of lenses.

Bills Introduced.—House bill 362 authorizes the board of medical registration and examination to issue a license by virtue of reciprocity on the presentation of a license to practice in any other state or in the District of Columbia, together with a diploma from a class A or B medical school and proof that the applicant served at least twelve months' internship in a reputable special or general hospital. House bill 271 provides that no dead body shall be cremated until after the coroner has made a thorough investigation of the circumstances surrounding death. House bill 350 creates a separate board for the licensing and examination of chiropractors.

IOWA

Bills Introduced.—House bill 214 authorizes counties to organize county boards of health and welfare and provides for the creation of county health and welfare units, which shall be under the direction and supervision of the county boards of health and welfare. House bill 228 regulates the licensing of cosmetologists. House bill 243 creates a state board of eugenics to determine the necessity for sexual sterilization of feebleminded, insane, syphilitic, habitual criminals, moral degenerates, and sexual perverts, whether confined in state institutions or at large.

Society News.—About sixty physicians attended the January 17 meeting of the Iowa and Illinois Central District Medical Association, Davenport; Dr. Edwin G. Bannick, Rochester, Minn., spoke on "Nephritis," and Dr. Kellogg Speed, Chicago, on "Fractures and Dislocations."——The Sioux Valley Eye and Ear Academy held its annual meeting at Sioux City, January 22, in conjunction with the annual meeting of the Sioux Valley Medical Society. Among others, Dr. L. William Morsman, Hibbing, Minn., discussed "Retrolental Space," illustrated by lantern slides; Dr. William V. Mullin, Cleveland, case reviews of laryngeal tumors; Dr. Cyrus W. Rutherford, Iowa City, "Unilateral Congenital Paralysis of the Motor Oculi," illustrated with lantern slides, and Dr. Dean M. Lierle, Iowa City, "Treatment of Asthma in Otolaryngology."——The Story and Boone county medical societies held a joint meeting, January 17, at Ames; Dr. Mark C. Jones read a paper on "Control of Respiratory Infections," and Dr. Maurice A. Healy on psychoneuroses.——Among others, Dr. Morgan J. Foster addressed the Iowa Clinical Medical Society, Dec. 1, 1928, at Cedar Rapids on "Enlarged Thymus, Milk Anemia."——A

motion picture, entitled "Being Examined," was presented before the Greene County Medical Society, Jefferson, Dec. 7, 1928. —— The Linn County Medical Society was addressed, Dec. 13, 1928, by Dr. Siegfried Mauer on foreign proteins.—— The Washington County Medical Society was addressed, Dec. 4, 1928, by Dr. Austin L. Braden, Wellman, on "Gastric and Duodenal Ulcer," and by Dr. W. E. Anderson, Washington, on "Care of the Child at One Year of Age." —— The state department of health says that cancer is now the second highest cause of death in Iowa, being exceeded only by heart disease, and that last year it caused 2,752 deaths, almost double the number reported eighteen years ago. The term cancer in the report applies to all malignant tumors.——An annual health meeting was held at Marshalltown, February 21-22, under the auspices of the Iowa Tuberculosis Association, the Iowa Heart Association, the Iowa Sanatorium Association and the Iowa Trudeau Society.——Drs. Charles Ryan and Floyd W. Rice, Des Moines, addressed the Dallas-Guthrie County Medical Society, January 17, at Adel on cancer.——The Dickinson and Osceola county medical societies met jointly at Spirit Lake, recently; among others, Dr. Frank Reinsch, Ashton, read a paper on "The Laboratory as an Adjunct to Diagnosis," and Dr. Knute A. Sporre, Harris, on some peculiar manifestations of influenza.

KANSAS

Bills Introduced.—Senate bill 229 provides for the establishment and maintenance of hospitals in counties having less than 40,000 inhabitants. House bill 503 provides for the establishment of a branch of the Kansas sanatorium for tuberculous patients, to be located in Cherokee County. House bill 542 amends the law relating to the instruction in physiology and hygiene in the public schools by providing that any pupil on the written request of parent or guardian shall be excused from instruction in physiology and hygiene, and by providing further that instruction in these subjects shall not be required as a condition for graduation from any public school. Senate bill 131 creates a state plumbing board and adopts minimum uniform standards of plumbing. Senate bill 175 authorizes counties to levy a tax, not in excess of one-half mill on the dollar, on the assessed valuation of all taxable property, to be placed in a "county health fund" and to be used in the enforcement of state health laws within the county and for paying the salary of the county health officer. Senate bill 190 creates a state board of barbering and regulates the practice of barbering. House bill 418 provides for the care of narcotic addicts and the establishment of departments in state institutions for their treatment. House bill 442 defines as a public hospital every hospital which is exempt from taxation or which is supported in whole or in part by public contributions and provides that no discrimination may be shown by a public hospital between the various branches of the healing art. House bill 455 creates a state board of examiners in the basic sciences and requires that a certificate of proficiency from such board be a prerequisite to eligibility for examination for a license to practice the healing art.

MAINE

Personal. — Dr. William L. Holt, Portland, has been appointed director of the division of communicable diseases and social hygiene in the state department of health, succeeding Dr. George H. Coombs, resigned.

Bills Introduced.—House bill 848 regulates the interment and disinterment of dead bodies. House bill 1020 creates a board of hairdressers and cosmetologists and regulates the business of hairdressing and cosmetology. Senate bill 410 would license and regulate private hospitals and private houses for the treatment of nervous and mental patients. House bill 358 amends the law concerning osteopathy by including surgery in the list of subjects in which an applicant is examined.

MARYLAND

House to House Influenza Canvass.—The U. S. Public Health Service has begun a survey of the influenza epidemic in Baltimore. With the aid of fourteen nurses under the direction of Dr. Wade H. Frost, a house to house canvass will be made to collect data on the thousands of cases which occurred. The city health department will place its facilities and records at the disposal of the service. This is part of a national survey to be made by the public health service in an effort to learn more about influenza epidemics.

Bills Introduced.—Senate bill 143 provides for an additional coroner for Baltimore to be known as a "coroner at large" and to have exclusive jurisdiction in all deaths resulting from automobile accidents. House bill 193 authorizes the state board of dental examiners to register without examination any person who has for six or more consecutive years bona fide and continuously resided in Maryland and who has practiced dentistry for fifteen or more years in another state or in the District of Columbia. House bill 205 reduces the cost of licenses for hawkers and pedlers of medicine and extracts to $25 a year.

Three Million Given Anonymously to Johns Hopkins.—At the commemoration day exercises of Johns Hopkins University, February 22, the president announced a gift of $3,000,000 from an anonymous donor for the maintenance of the medical and surgical clinics, and for the addition of 165 public beds, which amounts to the establishment of a new hospital. None of this money, however, is for the construction of buildings, these having been provided for by gifts from the General Education Board. Construction will start in a few months. This gift completes the expansion of the hospital, but it is far from supplying all the endowment that it needs. The orator on this occasion was Dr. William H. Welch who suggested, among other things, that the chair of medicine in Johns Hopkins be called the Osler chair in memory of the first professor of medicine in the medical school, Sir William Osler. Among the gifts announced at this time was one of $10,000 by Dr. Emanuel Libman to establish a lectureship in the history of medicine and to be named the Hideyo Noguchi lectureship.

MASSACHUSETTS

Society News.—The Somerville Medical Society voted to protest against H. R. 14070, a bill to provide child welfare extension service and said to be more extensive in scope than the Sheppard-Towner Act in that it would authorize the children's bureau to carry on its activities independent of state agencies.

Personal.—Dr. George M. Kline, commissioner of mental diseases for Massachusetts, has been awarded the Cross of the Knight of the Legion of Honor by France for assistance to the province of Quebec, Canada, in hospital work for the insane. ——Dr. Jacob I. Kasanin has been added to the research staff of the Massachusetts Society for Mental Hygiene and Dr. Ella I. Duff has been appointed as research psychiatrist.

Bills Passed.—House bill 54, extending to optometrists the benefits of the provisions of the statute of limitations for malpractice now accorded physicians, surgeons and dentists, has been passed by the senate and the house and approved by the governor. House bill 202, providing that no unvaccinated child under 14 years may be admitted to a private or public school unless he shows a certificate from a physician that his health would be endangered by vaccination, has been passed by the house. House bill 732, authorizing the town of Danvers to maintain a public hospital for the use of the inhabitants, has been passed by the house. House bill 1047, formerly house bill 325, authorizing the city of Cambridge to incur indebtedness for the erection of an addition to the Cambridge City Hospital, has been passed by the house and the senate and approved by the governor. House bill 986, authorizing the town of Amesbury to establish and maintain a public hospital and to purchase the Amesbury Hospital Association property for such purpose, has been passed by the house and the senate and approved by the governor.

MICHIGAN

Bills Introduced.—Senate bill 161 creates a board of professional registration to govern all practitioners of the healing art and provides that no one shall be eligible to take an examination before any of the respective professional boards until he has obtained certificates from the board of professional registration certifying that he has satisfactorily completed a four year high school course and that he has secured sixty hours of collegiate credit. Senate bill 158 provides for county health districts. Senate bill 160 amends the law providing for the examination, regulation, licensing and registration of physicians and surgeons by providing that the secretary of the Michigan State Medical Society submit lists of eligible physicians to the governor, from which list the governor may select appointees for the board of registration; by providing for four year terms for the members of the board of registration and medicine, and by providing that any applicant for a license to practice medicine must have resided in Michigan for a period of at least one year immediately preceding the date of application for registration and shall notify the board of his or her intention to apply for registration at least one year prior to making such application. Senate bill 170 authorizes the state administrative board to appropriate certain land for a site for a state hospital. House bill 80 provides that no license to marry shall be issued

unless there shall be filed with the application a physician's certificate certifying that a mental and physical examination of the parties has been made and that the persons are free from any mental and physical diseases which would render it improper for them to marry.

MINNESOTA

Prize for Research in Clinical Medicine.—The Minnesota Society of Internal Medicine announces that its third annual prize of $250 will be awarded "to the practicing physician, exclusive of members of this society, in the state of Minnesota who has been deemed most worthy to receive a prize in research in clinical medicine." Physicians who are whole-time members in teaching institutions cannot compete for the prize; physicians in the government service are eligible if their legal residence is in Minnesota. Theses should be submitted to the secretary, Dr. Edwin L. Gardner, 610 Yeates Building, Minneapolis, before October 1.

Bills Introduced.—Senate bill 468 amends the laws relating to qualifications for examination for registered pharmacists by providing that the applicant must be a graduate of a recognized college or school of pharmacy and have had at least one year of practical experience in drug stores where physicians' prescriptions are usually compounded before being entitled to examination. Senate bill 503 provides that after Jan. 1, 1930, there shall be no further examinations for registration and no registration of any person as an assistant pharmacist, but that it shall be lawful for all persons registered as assistant pharmacists prior to that date to continue to act as such. Senate bill 452 creates a state board of optometry and regulates the practice of optometry. House bill 381 defines persons unfit to procreate by reason of mental deficiency and provides for their sterilization; the office of eugenic director is created to carry out the provisions of this act. House bill 418 creates the state board of naturopathic examiners and regulates the practice of naturopathy. House bill 526 creates a board of barber examiners and regulates the occupation of barbering.

MISSOURI

Society News.—Dr. Horace W. Soper, St. Louis, addressed the Jackson County Medical Society, Kansas City, February 26, on constipation, and Dr. John G. Hayden on "Injection Treatment of Varicose Veins."——The Buchanan County Medical Society, St. Joseph, was addressed, February 20, by Dr. Walter Roger Moore on "Acrodynia," and by Dr. Daniel Morton on "Natural Gas Poisoning."

Bills Introduced.—Senate bill 533 provides for the construction of a hospital adjacent to the Missouri penitentiary for the segregation and treatment of tuberculous convicts. House bill 555 creates a department of mental diseases, to be under the supervision and management of the health supervisor and the six members of the board of managers of the state eleemosynary institutions, to see to the examination at least three times each year of the inmates of the Missouri state penitentiary and the Missouri reformatory and, if such inmates are found to be insane, to cause their removal immediately to the proper institution provided by the state. Senate bill 538 creates the office of medical examiner and provides that he is to be notified immediately in all cases of violent or casual death without medical attention and that he shall then take charge of the body, make a full and complete examination and, if he deems it necessary, hold an autopsy and keep a complete record of such examination to be submitted to the coroner. The coroner will hold an inquest if he deems it necessary after examining the medical examiner's report. House bill 109 requires coroners in counties over 300,000 and under 600,000 to report to the prosecuting attorney and the secretary of state all deaths caused by motor vehicles. House bill 415 prohibits the sale of patent and proprietary medicines unless the same shall bear on the label a statement that a certificate has been filed with the state board of health of the truthfulness of the label on each package.

MONTANA

Bill Enacted.—House bill 43, amending the state narcotic act by excluding mariahuana from the list of drugs deemed to be narcotics, has been passed by the house and the senate and approved by the governor.

Bills Introduced.—Senate bill 15 requires an affidavit from a duly licensed physician showing that the contracting parties are not feebleminded, imbeciles, afflicted with pulmonary tuberculosis in its advanced stages or afflicted with any contagious venereal disease before a marriage license may be issued. House bill 173 amends the law relating to the examination and registration of trained nurses by adding to the list of subjects on which applicants are examined the history of nursing.

Spotted Fever Vaccine Offered to Physicians.—The Hamilton laboratory of the state board of entomology has 10,000 cc. of spotted fever vaccine which will be furnished free to physicians for administration to individuals to prevent spotted fever with the understanding that no charge will be made for the vaccine to the patient. The vaccine is administered in two doses of 2 cc. each at five day intervals. The dose for children under 10 years of age is 1 cc. The reactions following vaccination are not severe as a rule; generally there is no reaction. At present it is recommended that vaccine be administered each year to persons subject to exposure to Rocky Mountain spotted fever, as the length of time that the protection lasts has not yet been definitely determined. People wishing to be vaccinated should consult their physician or local health officer. The U. S. Public Health Service, which is cooperating in the work, produces the vaccine.

NEBRASKA

Bill Introduced.—Senate bill 155 provides that the compensation commissioner shall fix and maintain a schedule of medical, surgical and hospital fees in workmen's compensation cases and requires an itemized statement of charges from the physicians.

NEW JERSEY

Bills Introduced.—House bill 196 creates a state board of barber examiners and regulates the practice of barbering. Senate bill 106 authorizes municipalities which have no municipal hospitals to appropriate moneys for the current maintenance and expense of operation of charitable hospitals in the same or adjoining counties. Senate bill 108 authorizes counties to appropriate moneys not to exceed 0.1 per cent of the total assessed valuation of the real and personal property of such county for the current expense and maintenance of charitable hospitals located in the county, the facilities of which hospital or hospitals are used by indigent residents of the county. House bill 161 establishes a state plumbing code, and provides for the licensing of plumbers and the inspection and supervision of plumbing. House bill 173 gives physicians, nurses, and hospitals a lien for professional services rendered on any judgment or compromise by the patient against the party causing the injury. House bill 187 makes it lawful for county hospitals to contract with municipal hospitals for services such as heat, laundry and food.

NEW MEXICO

Bill Introduced.—House bill 176 prohibits the possession, sale or distribution of peyote *(Lophophora williamsi)* or anhalonium.

NEW YORK

Bills Introduced.—Senate bill 679 amends the compensation law by providing that all diseases arising out of the employment are compensable. Senate bill 900 permits the state dental society to purchase and hold real estate and personal estate for the purpose of its incorporation.

Dr. Douglass Goes to Indiana.—Dr. Stephen A. Douglass, New York, has been appointed superintendent of the Marion County tuberculosis hospital at Oaklandon, Ind., and will take up his new duties, March 8, succeeding Dr. Harold S. Hatch, who resigned January 1. Dr. Douglass was for several years superintendent of the Ohio State Tuberculosis Sanatorium and from 1923 to 1927 was director of the Cattaraugus County Board of Health, following which he became medical field secretary of the National Tuberculosis Association.

Conference with State Health Agencies.—An agreement has been reached by the committee on public relations of the Medical Society of the State of New York and the leading state health agencies on the administration of the new law for the relief of crippled children which, according to the *New York State Journal of Medicine*, authorizes the state to provide means for the correction of defects in every child that is physically handicapped. In the administration of the law by the state departments of health and education, the crippled children will be sought out by public health nurses and social health workers and persuaded to submit to treatment. The law provides also for the payment of physicians treating those who cannot pay without the imposition of an undue sacrifice. At the conference in Albany, January 16, the committee of the state medical society presented the economic principles on which an agreement should be made with the state. These were accepted by the departments of health and education, removing, the journal says, the implication of state medicine in the administration of this law. It was agreed that the committee should

always be ready to advise any department of the state government regarding methods of operating any form of medical service which the state may need to adopt. There was a discussion of the matter of submitting a fee schedule for this corrective work under the law. The view prevailed that the fee should be uniform throughout the state, and therefore the state society should suggest the schedule. The committee believes that in this conference another step was taken toward establishing a proper professional attitude toward public welfare.

New York City

Society News. — Dr. George W. Mills, superintendent, Brooklyn State Hospital, addressed the Society of Medical Jurisprudence, February 11, at the New York Academy of Medicine, on "Insanity as a Cause for Divorce or Annulment." —— A symposium on pneumonia was presented at the February 18 meeting of the Medical Association of the Greater City of New York, the speakers being Drs. Edward E. Cornwall, Henry T. Chickering and Alvan L. Barach. —— The American Orthopsychiatric Association held its annual meeting, February 22-23, at the Hotel Pennsylvania under the presidency of Dr. Samuel M. Kaufman.——The Medical Association of the County of New York held an open forum on workmen's compensation, February 15, at the New York Academy of Medicine; the speakers were Dr. W. W. Britt, chairman, committee on medical economics of the state society; Dr. Morris Rosenthal, and Dr. Raphael Lewy, Prof. Lindsay Rogers, Ph.D., and John F. Turner of the Aetna Casualty and Surety Company.——Dr. Simon Flexner, director, Rockefeller Institute for Medical Research, delivered the William H. Welch lectures, February 1-4, at Mount Sinai Hospital on "Twenty-Five Years of Epidemic Poliomyelitis."——The Medical Society of the County of Kings held a symposium on "Highway Congestion: A Health Menace: Prognosis and Treatment," February 19; the speakers were George McLaughlin, president, Brooklyn Chamber of Commerce; James J. Byrne, president, borough of Brooklyn; Philip D. Hoyt, deputy commissioner of police, New York, and Paul Block of the Brooklyn Standard Union. The Friday afternoon lecture, March 8, at the society's home, will be by Dr. Michael Osnato, professor of neurology, New York Post Graduate Medical School, on "Epilepsy"; the March 15 afternoon lecture by Dr. Emil Goetsch, professor of surgery, Long Island College Hospital on "Thyroid," and the March 22 lecture by Dr. Edmund B. Piper, professor of clinical obstetrics, University of Pennsylvania School of Medicine, Philadelphia, on "Management of Certain Problems of Labor and the Puerperium."——The Brooklyn Urological Society was addressed, February 12, by Louis Nerb, Ph.D., of the Brooklyn Hospital, on a new and rapid method of obtaining cultures of the tubercle bacillus in cystoscopic specimens.

NORTH CAROLINA

Bills Introduced.—Senate bill 364 provides for the licensing of mouth hygienists by the board of dental examiners to teach and practice mouth hygiene in the public schools of the state. Senate bill 476 makes it unlawful for any person, firm or corporation to sell at retail any spectacles, eye glasses, or lenses unless a duly licensed physician or a duly qualified optometrist is in charge of and in personal attendance at the place where such articles are sold. House bill 586 provides for a license by virtue of reciprocity for chiropractors.

NORTH DAKOTA

Bills Introduced.—Senate bill 86 creates a state board of naturopathy examiners and provides for and regulates the practice of naturopathy. Senate bill 161 provides that undertakers are barred from holding the office of county coroner. Senate bill 175 amends the law relative to the North Dakota tuberculosis sanatorium by making its facilities available for the prevention of tuberculosis as well as for its treatment. Senate bill 213 makes it a misdemeanor for any person suffering from any contagious disease whatever wilfully and knowingly while in such condition to engage in labor as chef or cook in preparing food to be served in dining rooms.

OHIO

Bill Introduced.—Senate bill 145 creates a state board of embalmers and funeral directors and regulates the profession of embalming.

Society News.—Dr. Cyrus C. Sturgis, Ann Arbor, Mich., addressed the Montgomery County Medical Society, Dayton, January 18, on the modern treatment of anemia. —— The Summit County Medical Society, Akron, was addressed, February 5, by Dr. Robert M. Moore, associate professor of medicine, Indiana University School of Medicine, Indianapolis, on "Some Considerations in Heart Failure of the Anginal Type."——The Toledo Academy of Medicine was addressed, February 1, by Dr. Hugh H. Dorr, chief medical examiner, state industrial commission, on "Rights and Duties of the Physician Under the Workman's Compensation Act."——The ninth annual Ohio State Educational Conference will be held, April 4-6, at Ohio State University, Columbus. Among many others, Frank C. Whitmore, Ph.D., professor of chemistry, Northwestern University, Chicago, will speak on nonbiologic science; Dr. Thomas D. Wood, New York, on physical education, and Joseph Jastrow, Ph.D., New York, "Individual Differences in Relation to Personality." —— Dr. Harold Feil, Cleveland, addressed the Trumbull County Medical Society at the Trumbull Country Club, January 17, on heart disease, following which there was music and bridge. —— The Ohio Society for Crippled Children held its ninth annual meeting at Canton, February 8; the state health department in cooperation with local health units has had under observation, since 1921, nearly 12,000 crippled children throughout the state.——The Academy of Medicine of Cleveland was addressed, February 15, by Drs. Merthyn A. Thomas on "Irradiation Therapy for Uterine Fibroid and Uterine Menorrhagia" and Carl A. Hamann on "Carcinoma of the Breast."——The annual report of the Darke County Health Unit, of which Dr. Milford E. Barnes, Greenville, is health commissioner, has been received. In connection with the health unit, a training station for health workers was maintained throughout the year by the Rockefeller Foundation and the state department of health. There were seventy-one trainees and 161 visitors during the year from various states and foreign countries. —— The Gallia County Medical Society, Gallipolis, has been assigning the subject of medical biography to some member at each session for a ten minute talk; the society reports a much better attendance in recent months. —— At the annual meeting of the Columbus Academy of Medicine, recently, Gustavus W. Dyer, Ph.D., professor of economics and sociology, Vanderbilt University, Nashville, Tenn., gave an address on "The Responsibility of Leadership."

OKLAHOMA

Bill Introduced.—Senate bill 66 authorizes the state commissioner of health to appoint a superintendent for each county tuberculosis sanatorium.

Society News. — The Oklahoma State Medical Golfing Association will hold its annual tournament, May 27, during the meeting of the state medical association in Oklahoma City. The winner will be awarded a medal; prospective players are expected to be prepared to give their home handicap.——Dr. Pleasant F. Robinson, Madill, has been made health officer of Marshall County.——Dr. Frederick R. Sutton, Oklahoma City, has presented about 140 volumes from his library to the library of the University of Oklahoma School of Medicine.

Graduate Course in Pediatrics.—The University of Oklahoma School of Medicine and the extension division arranged a course in pediatrics for practitioners which was given at the University Hospital in Oklahoma City, February 11-15; the fee was $35. The faculty comprised Drs. McKim Marriott, dean and professor of pediatrics, Washington University School of Medicine, St. Louis; Henry F. Helmholz, chief of the pediatrics section, Mayo Clinic, Rochester, Minn.; Julius H. Hess, professor of pediatrics, University of Illinois College of Medicine, Chicago; Clifford G. Grulee, clinical professor and chairman of the department of pediatrics, Rush Medical College, Chicago, and Meredith F. Campbell, New York. The lectures were followed by clinics and demonstrations.

OREGON

Bills Introduced.—Senate bill 196 amends the law regulating naturopathy by permitting a license to be issued without examination to those practicing in the state for two years. Senate bill 201 grants the state board of health supervision over the sanitation, healthfulness, cleanliness and safety of swimming pools, bathhouses, public swimming and bathing places, and all related appurtenances. Senate bill 114 creates an examining committee in the basic sciences and requires a certificate of proficiency from the committee before an applicant is permitted to take an examination before any of the respective professional boards. Senate bill 183 establishes the office of narcotic commissioner for the enforcement of laws relating to the possession, sale or distribution of narcotic drugs.

PENNSYLVANIA

Bills Introduced.—Senate bill 505 prohibits the compounding, dispensing and preparation of drugs, medicines or poisons except by a duly registered pharmacist or assistant pharmacist and charges the state board of pharmacy with the duty of enforcing the law. House bill 935 amends the law relating to the educational requirements for osteopaths by requiring at least one year of college credit in chemistry, biology and physics prior to the beginning of the second, or sophomore, year in the course of osteopathic study. House bill 1016 requires the state board of medical education and licensure to appoint a board of chiropractic examiners to consist of five chiropractors and the superintendent of public instruction. The board of medical education and licensure would be required to appoint also in a like manner examining boards for naturopaths, neuropaths and others except osteopaths desiring licensure in other branches of drugless therapy. The board of medical education and licensure would also provide for the preliminary examination of applicants for licensure as chiropractors or other drugless practitioners, excepting osteopaths, in the basic sciences, which are defined as anatomy, physiology, pathology, bacteriology, hygiene, biochemistry, symptomatology and diagnosis.

Society News.—Dr. Arthur C. Morgan, Philadelphia, addressed the Harrisburg Academy of Medicine, February 19, on cardiorenal disease. The academy was addressed, January 15, by Dr. Allen Z. Ritzman, retiring president, on roentgen-ray treatment in modern medicine.——The Lycoming County Medical Society, Williamsport, held a symposium on influenza, February 8; Drs. Ferd E. Weddigen discussed bacteriology and the use of bacterial vaccines; Herman F. W. Flock, mucous membranes and middle ear infections in influenza, and Archibald R. Kirch, medical aspects of the current epidemic.——The Clinton County Medical Society, Lock Haven, was addressed, January 25, by Dr. John M. Dumm, Mackeyville, on "Origin of Life and When an Individual Is Really Dead."——Dr. William P. Brown, secretary of the state tuberculosis society, addressed the Northampton County Medical Society, Easton, February 15, on "Practicable Management of Tuberculosis."——The Delaware County Medical Society was addressed, February 14, by Dr. Rufus S. Reeves, Philadelphia, on "Diet in Health and Disease."——The Allegheny County Medical Society, Pittsburgh, was addressed, February 19, by Drs. Thomas M. Barrett on "Fever Therapy in Tabes and Paresis"; Viola Zoe A. Johnston, "Treatment of Skin Malignancy with Radium"; Theodore Diller, "Credulity from the Standpoint of the Medical Man"; Edward W. Jew, "Significance of Anorectal Pain," and George J. Feldstein, "Report of a Case of Hirschsprung's Disease."——The Pittsburgh Academy of Medicine held a symposium, February 26, on the aims and accomplishments of organized medicine. The speakers were Drs. Edward B. Heckel, chairman, Board of Trustees, American Medical Association; Thomas G. Simonton and Walter F. Donaldson, president and secretary, respectively, of the state medical society, and William H. Mayer, formerly president of the Allegheny County Medical Society.——The Bedford lecture of the Pittsburgh College of Physicians will be given, April 4, at the Duquesne Club by Dr. Howard Dittrick, Cleveland, on "Medicine in Art."

SOUTH DAKOTA

Bills Introduced.—Senate bill 89 authorizes counties to establish, erect and maintain county hospitals. Senate bill 77 amends the law relating to the state board of pharmacy by defining "pharmacopeia" as the latest edition of the Pharmacopeia of the United States and "national formulary" as the latest edition of that work published by the American Pharmaceutical Association. House bill 124 provides for the collection, recording and preservation of vital statistics under the supervision and direction of the state board of health.

TENNESSEE

Bill Introduced.—Senate bill 69 creates a board of barber examiners and regulates the practice of barbering.

Two Million for Medical School for Negroes.—Dr. John J. Mullowney, president of Meharry Medical College, Nashville, announced, February 17, that the General Education Board, New York, and the Julius Rosenwald Fund of Chicago had given $2,000,000 for a new model school for the training of 200 negro students in medicine, dentistry and pharmacy. The project will include also contributions amounting to $200,000 from the alumni to provide a 120 bed hospital. Meharry Medical College was established in Nashville fifty-two years ago.

TEXAS

Bills Introduced.—House bill 508 provides for the establishment and maintenance of two psychopathic hospitals in connection with and as a part of some of the hospitals for the insane now being maintained by the state. Senate bill 423 creates a state board of hairdressers and cosmetologists and regulates the business of hairdressing and cosmetology. Senate bill 441 provides that physicians must send the record of prescriptions for intoxicating liquors to the comptroller, and the druggist who fills the prescription shall keep permanently on file in his place of business the duplicate of each prescription.

UTAH

Bills Introduced.—Senate bill 122 regulates the examination and licensing of chiropodists. House bill 100 provides that the government and control of the Utah State Hospital shall be vested in a board to consist of the state treasurer, state auditor and one female citizen of the state, to be appointed by the governor. House bill 104 establishes minimum standards of professional education for the practice of medicine, surgery and drugless healing. House bill 112 permits the employment of licensed practitioners not using drugs or medicine by the state industrial commission to practice before the commission. House bill 103 provides that the department of registration in performing its functions with reference to licensing practitioners of naturopathy shall take no action in examining or licensing any such practitioner except on the action and report in writing of at least three and not more than five persons of good moral character from the particular school for treating human ailments from which the applicant desires a license to practice.

WASHINGTON

Society News.—The Walla Walla Valley Medical Society was addressed, February 14, at Walla Walla, by Dr. Lunsford D. Fricks on "Activities of the U. S. Public Health Service in Controlling Epidemic Diseases," and by Dr. Austin U. Simpson, Seattle, on "Control of Communicable Diseases." The society will be addressed in March by Dr. Lyle B. Kingery, Portland, Ore., on "Everyday Problems in Dermatology," and by Dr. Edwin J. Barnett, Spokane, on thymus gland enlargements in children.

Bills Introduced.—Senate bill 136 establishes a state board of public welfare to investigate and inspect any penal, reformatory or correctional institution and any institution for the care and custody of children or deaf, blind, defective, insane, aged or indigent persons maintained by the state or any county or city. House bill 283 provides that all hospitals supported in whole or in part by public funds must accord like privileges to all licensed physicians, regardless of the school of healing they profess. Senate bill 237 authorizes counties to unite in building sanatoriums to care for persons suffering from tuberculosis. Senate bill 227 provides for farms, hospitals, clinics and other methods for the care, treatment, cure and rehabilitation of narcotic addicts. House bill 197 regulates the sale and distribution of caustic or corrosive substances. House bill 241 regulates the possession, transportation, treatment and disposition of dead human bodies and relates to the licensing of embalmers and funeral directors. Senate bill 220 provides for the appointment by the governor of a state eugenicist and for the compulsory sterilization of socially inadequate potential parents, regardless of whether such persons are in the population at large or are in the custody of a custodial, reformatory, charitable or penal institution. Senate bill 227 would appropriate $50,000 to provide for farms, hospitals and clinics for drug addicts.

WEST VIRGINIA

Bills Introduced.—Senate bill 128 creates a state board of hairdressers and cosmetologists and regulates the practice of hairdressing and cosmetology. Senate bill 180 establishes a state orthopedic hospital. House bill 275 provides that a duly registered nurse may administer anesthetics, provided such anesthetics are administered in the presence and under the supervision of a licensed physician or surgeon. House bill 239 makes the practice of medicine, surgery or obstetrics without a license a misdemeanor and provides a fine for each such offense of not less than $50 nor more than $500, or imprisonment in a county jail for not less than one month nor more than twelve months, or both. House bill 234 would repeal chapter 40, acts of the legislature 1923, entitled "an act to define osteopathy and to authorize and regulate the practice of osteopathic physicians and surgeons."

WISCONSIN

Bills Introduced.—Senate bill 136 prohibits, after June 30, 1929, the itinerant practice of medicine, surgery, osteopathy or any other form or system of treatment, and provides that no license or certificate shall be construed to authorize itinerant practice. Senate bill 181 regulates the practice of chiropody. House bill 280 provides that a physician who holds a federal permit to prescribe intoxicating liquors need not procure a state permit. Senate bill 162 provides that physicians holding federal liquor permits will not be required to obtain state liquor permits.

County Society News.—The following addresses, among others, were given recently before medical societies:

Milwaukee County Medical Society, infection following pregnancy, Dr. John W. Harris, Madison.

The Langlade County Medical Society, iodine with relation to thyroid, Dr. Phillips F. Greene, Madison.

The Kenosha County Medical Society, occult tuberculosis in childhood, Dr. Karl E. Kassowitz, Milwaukee.

The Fond du Lac County Medical Society, relation of the vagus nerve to clinical diseases, Dr. Edward L. Miloslavich, Milwaukee.

The Outagamie County Medical Society, treatment of ankle fractures and early return of function, Dr. Victor F. Marshall, Appleton.

The Racine County Medical Society, obesity, Dr. Elmer L. Sevringhaus, Madison.

The Walworth County Medical Society, therapeutic application of the x-ray in general practice, and treatment of fractures, Drs. William H. MacDonald, Lake Geneva, and Frederick Christopher, Winnetka, Ill., respectively.

The Wood County Medical Society, crossed eyes in children, and differential diagnosis between renal lithiasis and cholelithiasis, Drs. William G. Merrill, Wisconsin Rapids, and Roy P. Potter, Marshfield, respectively.

WYOMING

Bills Introduced.—House bill 79 authorizes the county commissioners of any county to sell and dispose of county property and to use the funds derived therefrom for the erection and equipment of a county hospital. House bill 131 creates a board of barber examiners and regulates the practice of barbering.

GENERAL

Automobile Deaths Still Increase.—In the four weeks ending January 26, seventy-eight cities in the United States reported 612 deaths from automobile accidents, as compared with 531 deaths in the corresponding four weeks last year. For the fifty-two week period ending January 26, the number of automobile deaths in this group of cities was 7,597, as compared with 7,143 deaths in the fifty-two week period ending Jan. 28, 1928, the rates per hundred thousand of population being 23.2 and 22.1, respectively, or an increase of 5 per cent in the rate in a single year.

Clinical Pathologists Offer Prize.—The American Society of Clinical Pathologists announces that an annual award will be given for work in clinical pathology by one of its members. The prize will be a gold medal bestowed for outstanding research and will carry the profile likeness of Dr. Ward Burdick, the seal of the society, the name of the recipient and date of presentation. The late Dr. Burdick was secretary and cofounder of the society. Candidates for the award must present a thesis not less than two months prior to the annual meeting to be held in Portland, Ore., July 5-8. Correspondence should be addressed to the American Society of Clinical Pathologists, Metropolitan Building, Denver.

Society News.—Katharine Tucker, recently general director, Visiting Nurse Society of Philadelphia, has been appointed general director of the National Organization for Public Health Nurses, the headquarters of which are at 370 Seventh Avenue, New York.——The American Association of University Women has assured Mme. Curie that it will provide financial assistance for the continuation of her research after her death, and that it will endow her daughter Mme. Irene Curie Joliot with the income from the trust fund her mother now enjoys. The mother and daughter are associated in research work.——The Chi Zeta Chi Medical Fraternity celebrated its twenty-fifth jubilee, Dec. 28-30, 1928, in St. Louis. Having been founded at the University of Georgia School of Medicine in 1903, the sixteen chapters of this fraternity have been located exclusively in southern medical schools. At the St. Louis meeting the fraternity decided to consider petitions from medical schools in the north, east and west. An office was established in St. Louis, and Dr. Thomas Noxon Toomey of that city was elected supreme eminent master, and Dr. Richard Paddock, St. Louis, supreme secretary. The next convention will be in Memphis, Tenn., December, 1930.——The American Dental Association will hold its annual meeting in Washington, D. C., October 7-11.——Irving Langmuir, Ph.D., has been elected president of the American Chemical Society for 1929.——The U. S. Civil Service Commission, Washington, D. C., will receive applications for psychiatric social worker and junior social worker to fill vacancies in the U. S. Veterans' Bureau throughout the country up until June 29. Further information may be obtained from the commission or at the post office or customhouse in any city.——At the annual meeting of the American Heart Association, New York, February 4, Dr. Cassius H. Watson, New York, of the American Telephone and Telegraph Company spoke on "Pre-Employment Examination of the Cardiac"; Dr. Wade Wright, New York, Metropolitan Life Insurance Company, "Mortality and Morbidity from Heart Disease Under Industrial and Group Insurance," and Dr. Alfred E. Cohn, Rockefeller Institute, "Concerning the Unsatisfactory Situation in the Industrial Occupation of Cardiac Patients."——According to the American Birth Control League, there are now twenty-eight birth control clinics in the United States, distributed over ten states. ——Dr. Edward L. Keyes, New York, was elected president of the American Social Hygiene Association at the annual meeting in January in New York, and Dr. Donald R. Hooker, Baltimore, secretary.——At the annual meeting of the Radiological Society of North America, in December, 1928, in Chicago, Dr. Maximilian J. Hubeny, Chicago, was made president; Dr. Robert J. May, Cleveland, president elect, and Dr. Walter T. Bronson, Chicago, secretary. The next annual session will be held at Toronto, Ont., Dec. 2-6, 1929.——Dr. Albert S. Buchanan, Prescott, was elected president of the Tri-State Medical Society (Arkansas, Louisiana, Texas) at the recent annual meeting.

Medical Bills in Congress.—Senate J. Res. 209, creating a joint congressional committee to be known as the committee on narcotic traffic, has passed the Senate, with an amendment decreasing the appropriation provided in the resolution from $50,000 to $25,000. S. J. Res. 222, introduced by Senator Tydings, Maryland, provides for the recognition of Augustus C. Breitenstein as the inventor of the Breitenstein ultraviolet and infra-red generating and reflecting apparatus. S. 3936, regulating the healing art in the District of Columbia, has been reported out of conference and the conference report has been agreed to by the House. S. 5094, providing for the deportation of certain aliens, has passed the House, with an amendment authorizing the deportation of an alien who violates or conspires to violate any statute of the United States regulating the use of narcotics. S. 5819, introduced by Senator Black, Alabama, authorizes the erection of a United States veterans' hospital in the state of Alabama. S. 5839, introduced by Senator Smoot, Utah, provides that the physician in charge of the narcotics division of the U. S. Public Health Service shall be an assistant surgeon general. H. J. Res. 383, authorizing $5,000 for expenses of United States delegates to the Congress of Military Medicine and Pharmacy, London, England, in 1929, has been favorably reported to the House. H. J. Res. 420, introduced by Representative Porter, Pennsylvania, requests the President to make representations to the powers party to the Hague Opium Convention, urging full compliance with the provisions and aims of that convention. H. R. 14153, providing an additional appropriation for the construction of a hospital annex at the Marion Branch, National Home for Disabled Volunteer Soldiers, has passed both the House and the Senate. H. R. 15921, authorizing an appropriation to provide additional hospital facilities, etc., for persons entitled to hospitalization under the World War Veterans' Act, has been ordered favorably reported by the House Committee on World War Veterans' Legislation, with an amendment increasing the appropriation from $10,000,000 to $11,480,000. H. R. 15387, regulating the practice of nursing in the District of Columbia, has passed the House. H. R. 16441, introduced by Representative Weaver, North Carolina, incorporates the Distinguished Service Foundation of Optometry. Hearings have been held on this bill. H. R. 16845, amending the World War Veterans' Act, has been favorably reported to the House with an amendment providing that any honorably discharged veteran who became permanently and totally disabled in fact prior to Jan. 1, 1929, as a result of a chronic or constitutional disease, regardless of its origin, and who served ninety days or more during the World War, shall be entitled to the full benefits of the act. H. R. 17125, introduced by Representative Johnson, Indiana, amends the World War Veterans' Act by providing that any person who served in the military or naval forces during the World War who is shown to have, within ten years after the date of his discharge, or resignation, from such service, any disability not the result of his own wilful misconduct, shall be presumed to have acquired such disability as a result of, or to have suffered an aggravation of a preexisting disability in, such service.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 2, 1929.

The Exclusion of Women Students from London Medical Schools

Before the war none of the twelve medical schools in London admitted women, except the London School of Medicine for Women, which was founded for women only and remains restricted to them. The emergency of the war produced a shortage of men students and at the same time overcrowding of the London School of Medicine for Women. The result was that in 1916 three of the medical schools previously restricted to men, St. Mary's Hospital, St. George's Hospital, and Charing Cross Hospital, undertook to receive women for clinical studies. In 1917 Westminster Hospital and in 1918 the London Hospital, King's College Hospital, and University College Hospital resolved to admit women, the last restricting the number to twelve a year in 1921. In 1919 St. George's Hospital, in 1921 the London Hospital, in 1924 St. Mary's Hospital, and in 1928 Charing Cross, Westminster, and King's College hospitals announced their intention of discontinuing the admission of women students. The result is that the London School of Medicine for Women, and University College Hospital, to the extent of twelve women a year, are the only London medical schools admitting women students. The main reason for the exclusion of the women students was the objection of men students to coeducation. As reported in previous letters to THE JOURNAL, the exclusion was strongly resented by the feminist leaders and an acrimonious controversy arose. An appeal was made to the senate of the University of London, of which the medical schools are constituent, and it appointed a representative committee of leading educationists to consider the question of the limitations placed on the medical education of women and to report thereon. Ten meetings were held, at which a large number of witnesses were interviewed, including the deans of all the medical schools in London.

The report, which has now been published, is therefore the result of an exhaustive examination of the question and is a most authoritative pronouncement from the standpoint of educationists but, although two well known medical teachers are members of the committee, the report cannot be said to represent the views of medical teachers or of the medical profession in general. The committee recognized two aspects of the problem—that of providing clinical facilities adequate for the number of women requiring them, and that of providing such facilities in schools open to both sexes. In its first aspect, the committee holds, the problem is comparatively simple. The great increase during the war in the number of women taking up medical studies has been followed by a striking decrease. In the London School of Medicine for Women, the total number of students rose from 193 just before the war to 459 in 1920-1921, and fell to 298 in 1926-1927. Outside London the fall in the number of women medical students has been even more marked.

But there appear already to be indications of a revival. The committee estimates that the provision of 100 clinical places for women, apart from those available at the London School of Medicine for Women, would be ample for the next few years. But though adequate provision for clinical studies for women is important, the real issue is whether facilities should be provided on a substantial scale in London for medical coeducation. In all its other large faculties—e. g., in arts, science, economics, laws—the University of London is predominantly coeducational. It has a few colleges confined to women, but none in these faculties confined to men. The prepossession of the University of London has on more than one occasion been expressed in favor of a measure of coeducation also in the Faculty of Medicine. This prepossession is, of course, to be explained by the traditional attitude of the University of London, which was the first university in the British empire to open its doors to women. In the statutes it is expressly enjoined that the university shall recognize no disability on the ground of sex. "Is there any feature peculiar to medical studies," the committee asks, "making coeducation, which predominates in the rest of the university, undesirable in that one field?" The committee is satisfied that the relationship existing between men and women students of medicine is not of itself an objection to coeducation, and is glad to say that none of the representatives of schools who have had experience with women students alleged any case of difficulty; uniformly the conduct of the women was described as excellent.

The committee examined objections to coeducation as expressed by the deans of the medical schools which have refused students, such as the necessity for providing special accommodation (residential and other) for a mixed staff; the difficulty of teaching mixed classes in some subjects; the tendency of women to crowd to the front at demonstrations, and the difficulty of reproving a person of one sex in the presence of the opposite sex. The committee says on this point: "We think there must be some force in these objections, but they have not been felt to be insuperable by schools with actual experience of coeducation, and in fact they appear to us capable of adjustment with no more difficulty than most coeducational problems." Nor is the committee impressed by the argument that the medical education of women is to a great extent thrown away by the "wastage" that occurs, owing to marriage and other reasons which result in women leaving the medical profession after undergoing the expense and difficulty of qualification. The committee thinks that the "wastage" is much less considerable than is sometimes supposed. "In so far as it has any weight, the argument tells not against coeducation in medicine, but against any medical education of women at all. In London it certainly cannot be used as an argument for curtailing the facilities for women, for, in the aggregate, the number of places vacant is certainly greater than the number of applicants who could fill them."

On the other hand, the committee holds that in medicine women certainly gain by being educated side by side with men, and that such an education is a valuable training for that cooperation which subsequently becomes necessary between medical men and women. It may be that the advantage is not felt so much by men students, and indeed coeducation for some men may not be profitable. On the whole, however, they think that the advantage to the women outweighs any possible loss to the men. They do not suggest, of course, that there are no difficulties in the way of medical coeducation in London, but such as do exist are not the difficulties already referred to. The real difficulties arise from (*a*) the multiplicity of medical schools and their competition for students, and (*b*) the feeling against coeducation entertained by some physicians, men students and a section of the public. With few exceptions, the authorities of the medical schools appear to be convinced that men, if they have a choice, prefer to go to schools which do not admit women. In one case in which a genuine attempt was made to provide absolutely fair treatment to women students, the apprehension that the policy of coeducation was heading the school for disaster led to its reversal.

In formulating its conclusions, the committee is unable to see any valid argument against the provision of coeducation in medicine. It does not wish to suggest that coeducation should be universal in the medical schools. Among the consequences likely to result from the adoption of such a policy would be that in some schools only a small number of women, perhaps only one woman, might be registered. Such a condition would

on various grounds be highly undesirable. The committee recommends that there should be three types of clinical education: (1) for men only; (2) for women only, and (3) for men and women. This involves the maintenance as men's schools of certain existing schools, the maintenance of at least one women's school, such as the London School of Medicine, and the provision of facilities for coeducation. The senate of the university has signified a "general" approval of the report and has resolved to invite those schools not at present admitting women to consider the possibility of admitting a quota.

The Brain of Fossil Man

Lecturing on the human brain at the Royal College of Surgeons, Sir Arthur Keith said that perhaps the most fruitful inquiry into the history of man's brain was provided by the fossilized skulls of extinct races. It was fortunate that a skull retained a more or less perfect impress of the brain. Hence a cast showed the size, shape and many of the convolutionary markings of a brain which had passed into dissolution half a million years ago. The best representative of an early stage of human evolution was *Pithecanthropus*—the fossil man of Java. Could he speak? Speech was not a matter of tongue or voice, but of brain; it was possible only when the brain became big enough and sufficiently elaborate to understand and remember what was seen and heard, to formulate thoughts, to make plans and to obtain conscious control over the muscles of the larynx, tongue and lips. Had the brain of *Pithecanthropus* reached such a stage? The cast taken from the skull indicated that speech was just becoming possible—primitive emotional speech. The brain of *Pithecanthropus* weighed about 30 ounces, the minimum compatible with human speech. When the brain fell below 30 ounces it was incapable of conscious thought and speech. It was when a child's brain passed about the 30 ounce standard that it began to acquire speech. The faculty of speech involved cooperation of almost the whole of the brain's convolutions. In *Pithecanthropus* the essential parts of the brain could be identified. Where it lacked was in the areas of association—the parts of which had undergone so great an expansion in the later stages of man's evolution, the seat of his higher mental activities. Various stages in the expansion of the association areas could be traced on brain casts taken from the fossil skulls, and also on the brains of the more backward of living races. We could apply the "cast" method to the study of the brains not only of fossil man but also of famous men and women. In this way anatomists came to know about the brains of Sir Thomas Browne, Dean Swift, and many others. There was, however, one difficulty. The brain might become "blanketed" by the cerebrospinal fluid, so that it no longer left a sharp impression of its convolutions on the skull. Certain parts of the brain were always blanketed, so that their convolutions could not be deciphered, but as a rule the larger part was clear and made sharp impressions on the skull. Fortunately, in the skulls of primitive races, the essential convolutions were usually uncovered and left sharp impressions.

RESERVE BRAIN POWER

Men showed more variations in the weight and volume of their brains than in any other part. Nature seemed to be careless as to the amount of brain given, and in many cases she showed that men with small brains succeeded just as well as, or even better than, those with larger brains. Some of the extinct races were large brained. Parts of the brain had been destroyed by accident or disease or removed by operation and yet in many cases no ultimate deterioration in ability had been observed. Had man come by a bigger brain than he needed? How had he come by it? It could hardly be as a result of use, for human beings rarely used their abilities up to 50 per cent of their capacity. One could not conceive that mere use, through an infinity of generations, could convert an ape's brain into that of man. Apes were not given to thinking. Only one line of reasoning threw light on this curious problem—the overcapitalization of the human brain. Engineers in building bridges planned them to withstand a strain ten times that which was likely to fall on them (a "factor of safety"). All the organs and parts of living animals possessed a large factor of safety. Only athletes, and these for the briefest of spells, used their hearts and lungs to near the limit of safety; most of the time they utilized only from 10 to 15 per cent of their power. Only once or twice in a lifetime did a man exert all the power of his muscles; the power lay latent awaiting an emergency which perhaps came only once in fifty generations. The same principle applied to man's brain; it had an enormous factor of safety. This factor had made it possible for beings designed originally for a jungle life to come to have abilities of transcendent power.

PARIS

(From Our Regular Correspondent)

Jan. 16, 1929.

Immunization Against Typhoid

The question of immunization against typhoid, brought to the fore again by the recent epidemic in the villages adjacent to Lyons, which left its impress on this city as well, continues to call forth, before the tribune of the Academy of Medicine, the declarations of various savants who have specialized in that field. M. Delorme, formerly *inspecteur général* of the army medical corps, has stated that the only means of protecting a city against epidemics of typhoid is by supplying it solely with water that has been sterilized. He cited the example of several cities formerly ravaged, such as Lunéville, which has now become a perfectly healthy city through the application of that method. These facts were not new to the academy, which is more interested in preventive vaccinations, the experience of the last war having been decisive, on that point. The chief question that is now asked is rather as to the duration of immunity acquired by such vaccinations. Professor Vincent, who was the proponent and who has been the active supporter of the T A B vaccine (cultures of typhoid bacilli and paratyphoid bacilli A and B, sterilized by ether), has pointed out that the duration of immunity varies greatly and that every individual constitutes a distinct problem. One should never count on a definitive immunization. Even former typhoid patients, who are more firmly immunized than others, may present from 1 to 2 per cent of recurrences. Vincent thinks, however, that one can reasonably expect a general immunity of from fifteen to sixteen years in a vaccinated population in a region infected endemically. He cited the case of the city of Avignon, in which, in 1912, there was a very serious epidemic, with a total of 1,500 cases. Mass vaccinations with the T A B vaccine were performed. No case developed among the vaccinated subjects, and up to 1922, ten years later, no case of typhoid occurring in these subjects had been reported. Vincent added that, if it is true that the effects of the vaccination performed in large numbers during the war, with two or three doses repeated at intervals, are still manifest, it is hardly just to attribute the fact to the repeated doses, for, of the seven to eight millions of subjects vaccinated during the war, many managed to evade the second and third "puncture." At Avignon, each person received but one injection.

The Costume of Academicians

At the annual election of officers held recently, the Academy of Medicine chose as president Professor Quénu, an eminent surgeon. In his inaugural address, he referred to the colleagues who had died during the previous year, and closed with a humorous allusion to the costume of academicians. This costume, covered with embroidery and gold lace, is similar to that worn by the members of the institute and was designed by David, a

century and a quarter ago, at the request of Bonaparte. It is worn only at official ceremonies, at funerals of colleagues, when delivering an address, and at the regular annual meeting (but only by the members of the staff of officers). In fact, of the hundred members of the Academy of Medicine, there are many who do not own a costume and prefer to remain away from the ceremonies at which they would be obliged to wear one. Quénu put before the academy the question as to whether it would not be better to abolish the special costume. It costs nowadays a considerable sum (more than 3,000 francs, or about $120), and, in addition, the sword alone costs 1,500 francs. Dating from the epoch of court costumes, it has now become an anachronism in a democracy. Members of the academy who are, at the same time, professors or agrégés of the Faculté de médecine, wear a different costume (entirely of silk) at their functions—which is likewise ornamented with gold lace and is no less expensive. Its utility, however, is possibly more easily defended, as it serves as a distinguishing mark for the members of examining boards. The academy showed some hesitancy about accepting his suggestion, as most of the academicians never buy the expensive costume, preferring to rent or borrow one when it is needed. But they would feel that they were suffering a loss of prestige if the costume were to be suppressed.

Progress of Surgery of Cerebral Tumors

At the recent Réunion neurologique internationale, Dr. Clovis Vincent presented a paper on cerebral tumors, in which he pointed out the advantages to be derived from the American methods of surgical treatment, which he had been able to observe during his visit in America. Taking up the question again, the author presented, at the last meeting of the Société médicale des hôpitaux, a group of patients the observation of which demonstrated the great value of the method in question. Treatment of cerebral tumors had hitherto been limited to the trephination of compressions, a palliative measure often ineffective, while a genuine surgical treatment of cerebral tumors did not exist. Heretofore, to establish a diagnosis of "cerebral tumor" was equivalent to a hopeless prognosis. In his communication, Vincent emphasized the relative frequency of cerebral tumors now that it has become easier to recognize them, with the aid especially of radiography. It was in collaboration with Dr. de Martel that the author established the technic of surgical intervention for the removal of cerebral tumors. The postoperative mortality, which was 50 per cent, has now been reduced to 25 per cent. The accidents most to be feared are hemorrhages. The nine patients presented before the Société médicale des hôpitaux had been operated on either for a cerebellar tumor or for a meningioma of the temporal or frontal fossa. Their improvement was in direct relation to the length of their convalescence. The symptoms of disequilibrium in the cerebellum disappeared gradually. The deafness and the blindness from choked disk retrogressed when the intervention was sufficiently early. Vincent emphasized the fact that there is a new cerebral surgery and stated that, if the patients are not all cured in a definite manner, they receive at least a new lease on life, extending for twenty-seven, thirty and even forty years, without pathologic manifestations.

The National Bureau of Social Hygiene

The Office national d'hygiène sociale, which was established only two years ago, is expanding its organization and scope, which is already considerable, to judge from the impression gained from its annual report just published. The bureau is working earnestly in order to complete its documentation services and the classification of subjects. From day to day, as its existence becomes better known, not only the number of visitors but also the number of requests for information coming from France and foreign countries increase. The number of subjects on which information is furnished has increased from 323 to 684. The bureau complies with every written request from whatever source. The most frequent demands for information and literature received this past year were on the following subjects: legislation pertaining to children, dispensaries of child hygiene and consultation centers for pupils, antituberculous vaccination, the Roussel law and its proposed modifications, the homes for mothers, the day nurseries, the infant feeding centers, the consultation centers on infant care, the free-milk distributing centers, the canteens for mothers, societies for the care of abandoned children, education of backward and abnormal children, the results of the medical inspection of schools, mortality of children from 1 to 4 years old, open-air preventoriums, the number of illegitimate children arranged according to departments and years for the past decade, statistics on infant mortality, management of a consultation center on infant care, legislation pertaining to sanatoriums, institutions for the reeducation of the tuberculous, equipment of antituberculosis dispensaries, statistics on tuberculosis mortality in foreign countries, publicity material prepared in foreign countries on venereal diseases, statistics on stillbirths, statistics on cancer mortality, organization of the crusade against cancer, food rations and the nutritive value of foods, legislation pertaining to epidemics, flies, the health budgets in different countries, the prevention of accidents in connection with agricultural work, health record-books, social insurance, the principal resolutions emitted by the various congresses since 1919 concerning the various branches of social hygiene, antityphoid vaccination, health propaganda by means of motion pictures, bibliography on popular education in health matters, legislation on unhealthful dwellings, the prevention of industrial accidents, dental hygiene in France, legislation pertaining to occupational diseases, and the crusade against alcoholism.

BELGIUM

(From Our Regular Correspondent)

Dec. 15, 1928.

The Crusade Against Automobile Accidents

Reference has been made in previous letters to the action taken particularly by Dr. L. Weekers of Liége, before the Royal Academy of Medicine, toward the introduction of special examinations for drivers of automobiles. He has continued his crusade in the *Bruxelles-médical*. He holds that the physician might intervene advantageously in the crusade against automobile accidents by aiding in the elimination of drivers who are unfit, and thinks that parliament ought to make it possible for him to function in that capacity.

There follows the first draft of the qualifications that should be required of automobile drivers, and a tentative list of the infirmities and the diseases that render a person unfit to drive an automobile.

Vision.—Vision of both eyes is required. Visual acuity, after correction, should be at least 4/10 in one eye and 1/10 in the other eye (the Wecker scale of tests). The visual field should be normal in each eye. Diplopia or hemeralopia (night-blindness) renders a person unfit to drive an automobile.

Hearing.—One third of normal biauricular auditive acuity is required (ability to understand whispered words at a distance of 3 meters). Ménière's disease renders a person unfit to drive an automobile.

Condition of the Limbs.—The complete loss of use of a limb renders a person unfit to drive an automobile. This has reference not only to an anatomic loss but also to articular, muscular or nervous lesions that entail complete loss of function of a limb. Cases of partial impotence involving several limbs should be submitted to a medical board for a decision as to the competence of the person concerned.

Nervous Diseases.—Epilepsy, tabes, paresis, Parkinson's disease, multiple sclerosis, and syringomyelia, render a person unfit to drive.

Mental Disorders.—All definite mental disorders render a person unfit to drive.

Cardiovascular Diseases.—Grave cardiovascular disorders (angina pectoris, high blood pressure of a marked type) render a person unfit to drive.

Drunkenness is an absolute cause of unfitness.

Important Observation.—In order not to incur the penalties provided by the law, automobile drivers are expressly advised to consult their physician and to ascertain whether or not they have any cause of unfitness of which they are ignorant. In case of accident, they will not be allowed to plead ignorance of their condition as a mitigating circumstance. If, by reason of an infirmity from which they are suffering, their aptitude for driving is doubtful, they may, on the basis of a written recommendation of their physician, apply to a medical commission designated for that purpose, which will deliver to them, if found entitled thereto, a certificate of aptitude, good for two years and renewable for a longer period.

The author added further considerations that merit the attention of the authorities. It will not suffice for each country to establish regulations, in order to eliminate the unfit. An international convention will be indispensable, to put the subject on the same basis as the international signal system and the international code system. Every day, automobilists in great numbers cross the international borders, and eventually an international organization of traffic will have to be established.

It would be advisable to request the League of Nations to appoint a medical commission to draw up, from the international point of view, a code of regulations defining the requisite qualifications for driving an automobile. It is only a short time since an international commission met to coordinate the efforts in the crusade against the use of narcotic drugs, while another commission has been engaged in the unification of the pharmacopeia, the standardization of laboratory tests, biologic dosages, and the like.

If such international legislation could be accomplished, its chief value would lie in the mode of application. To prevent theoretical data from failing in their practical application, the automobilist should be compelled to assume all the responsibility. The following suggestion is offered: A list of the various physical defects that render a person unfit to drive an automobile should be drawn up, and this list should be supplied to all those who apply for a driver's certificate or license. It should be announced that any one who, presenting any of the stated defects, drives an automobile is guilty of a grave misdemeanor, or, if preferred, of grave imprudence. If, nevertheless, a person who is unfit exceeds his rights and drives an automobile, he would be, in case of accident, ipso facto, after examination by an expert, sentenced to the payment of a heavy fine and to imprisonment, and, in addition, would be responsible for the damage suffered by others by reason of the accident. It would be necessary, of course, to distinguish between penal responsibility and civil responsibility. An unqualified person caught driving would receive a first sentence by reason of that fact alone. He would not be compelled to indemnify others unless it could be shown that his inaptitude for driving was in some measure responsible for the occurrence of the accident. In this manner, persons not qualified to drive would eliminate themselves to a great extent, which is the principal advantage of the plan. Furthermore, the intervention of the insurance companies would aid in getting rid of the unfit. After making it obligatory for drivers to carry insurance against accidents, the law would prohibit insurance companies from issuing a policy to an unqualified person. To issue such a policy would be a misdemeanor. No one can aid another in the violation of the law.

The problem is of world-wide scope. It is being studied in every country. An international congress of ophthalmology will be held in the Netherlands in September, 1929. One of the main topics on the program is the standardization of the visual requirements for drivers of automobiles.

NETHERLANDS

(From Our Regular Correspondent)

Dec. 15, 1928.

Congress of Open-Air Schools

A Congress of Open-Air Schools was held from June 22 to 23 at the University of Amsterdam. Associated with the congress was an exhibit of sketches, designs, photographs, drawings and patterns. The schools of Amsterdam, The Hague and Leiden were especially well represented. Mr. B. H. Sajet gave a general account of open-air schools. The first open-air school was established in 1904 at Charlottenburg. The United States and England followed the example of Charlottenburg. The Netherlands is still a beginner in this field. Dr. Heyermans, director of the communal service of Amsterdam, delivered an ardent appeal in favor of open-air schools, and enumerated certain principles that they should follow: 1. Both the body and the mind should be trained. 2. They should be centrally located. 3. Teachers and physicians must work together. A physician should direct the installation of equipment. 4. The instructional corps should teach the care of the body. The clothing should be light and loose-fitting to permit sun-baths and physical exercise. Shower baths should be provided. 5. On cold days the feet should be kept warm by means of pipes or warming rugs. Madame Dr. D. Van Dorp recommended that open-air schools be attached to sanatoriums for children. The children who should take the courses in these schools are those with anemia, asthma, glandular tuberculosis, and the like.

Instruction for Abnormal Children

The number of pupils in six schools for deaf mutes was 801, Dec. 31, 1927. Of these pupils, forty-six were in a preparatory class. Of the remaining 755, 410 were boys and 345 girls. There were seventy-five ordinary classes and six preparatory classes. The increase in the number of pupils for 1927 was twenty-two. The schools for the blind contained 216 pupils (137 boys and seventy-nine girls). The increase in numbers for 1927 was twenty-seven. The increase is doubtless the result of the campaign undertaken to induce parents of blind children not to keep them too long at home without instruction but to send them to the schools for the blind, where they can receive the education they need. The number of pupils who are hard of hearing was reduced during 1927 from 261 to 247. The number of classes (nineteen) has remained the same.

The Milk Control Station in Amsterdam.

The milk control station in Amsterdam (the M. E. C. A.) was established in 1926 with the aid of two granges, or associations of farmers, and has been subsidized by the communal administration. Through the activities of its 600 members, who own a total of more than 12,000 cows, or almost half the cows supplying milk to Amsterdam, great improvements have been brought about. Progress has been made in the distribution of water and of electric current. General cleanliness has been advanced. Of 400 establishments that were constantly under supervision, 50 per cent have become free from the streptococcus. The butter fat content of the milk has been improved. In 1927, the controllers examined samples from 14,800 cows. A great interest is taken in the courses that are being given. There will be twelve sessions this year. Scientifically trained teachers will give the theoretical instruction. In a short time, cows suffering from open tuberculosis will be the special subject of study and investigation. At present, a

film is being prepared that will show the influence of hygiene on man and animals.

Importation of Milk in the Dutch East Indies

Canned milk, a preparation of western origin, is a food highly appreciated in the Dutch East Indies, not only by the Europeans but also by the Chinese and by the native population. During the period 1922-1926, the annual importations reached a value of 6,700,000 florins (\$2,680,000). For a number of years, in addition to the condensed sterilized whole milk, large quantities of condensed skim milk have been imported. This article has only a small butter fat content and consequently only a slight nutritive value. It is designed for various domestic purposes but not as a food for children, patients and convalescents. Owing to the weak buying power of the native population, this cheap food attracts a wide circle of buyers. It is necessary to prescribe measures whereby the skimmed milk can be immediately distinguished from the whole milk. In the Straits Settlements, the importation of skimmed milk is permitted only on the basis of special authorization. In Siam, the production, importation and sale of skimmed milk have been strictly prohibited since February, 1928. The contracts still unfilled will continue in force for six months after the publication of the law, and the sale of the article for a further six months. The government hopes thus to reduce to a great extent child mortality, the prevailing high rate being attributed by physicians to the consumption of skimmed milk.

In the Dutch East Indies, the regulations require the manufacturer to indicate on the container in the two languages, Dutch and Malay, the nature of the product. These regulations, as they do not impose any heavy burden, are better adapted to insure the protection of the consumers.

National Federation for the Social and Hygienic Protection of Childhood

At the department of labor, commerce and industry, Dr. Eykel, the *inspecteur principal* of the public health service, summoned recently a commission charged with the promotion of measures looking toward improvement in the health of childhood. Associated with them were the representatives of twenty-five societies of the Netherlands that deal with the same problem. The special purpose of the meeting was the formation of a national federation. The assembly was presided over by the director general of the public health service, Mr. L. Lietaert-Peerbolte, who expressed the view that the results accomplished by the individual societies would be more outstanding, not only from the practical but also from the scientific point of view, if they could meet frequently for an exchange of opinions. The delegates decided on the formation of a national federation and selected a committee to draw up the constitution. The federation will doubtless affiliate with the Réunion internationale, which has its headquarters in Brussels.

ITALY

(From Our Regular Correspondent)

Dec. 15, 1928.

University of Bologna

The department of public instruction has signed an agreement with the University of Bologna for the general improvement of that institution. A number of halls will be modernized and new buildings, costing 58 million lire, will be constructed. This will require eight years.

Congress of Urology

The Società Italiana di Urologia recently held its seventh congress in Rome with Prof. Roberto Alessandri, clinical surgeon, presiding. The subject of the report was "Colibacilluria." It was divided into two parts. The first part (etiology, pathogenesis and immunotherapy) was presented by Prof. Vincenzo Jura of Rome. The second part (symptomatology, pathologic anatomy, diagnosis, prognosis and therapy) was discussed by Prof. Luigi Bonanone of Rome. Professor Jura reported that *Bacillus coli,* although often ignored, is present in the urine in from 80 to 90 per cent of cases of urinary disease. Colibacilluria may be primary (colibacillosis) or secondary (colibacillemia), symptomatic or essential, transient or permanent. It is more frequent in mature persons and in women; in the latter, the pyelitic manifestations predominate. The most important group of cases of pyelitis in women is in pregnant women, as 1 per cent of them present pyelitic symptoms whose etiologic agent is almost always *Bacillus coli.* It occurs also in the urine of pregnant women without morbid urinary symptoms, as Professor Jura has confirmed by recent investigations in 180 cases. Of great importance in asserting the existence of colibacilluria is Heitz-Boyer's enterorenal syndrome, a disease in which there are urinary disturbances of intestinal origin. As soon as the bacteria enter the blood stream from the intestine in gastro-enteritis, appendicitis, or dysentery the condition develops into a bacteremia; *Bacillus coli* attacks the kidney and there causes nephritis and pyelonephritis; it may also cause cystitis. In a similar way, intestinal stasis may be the active factor in paraplegia; also in intestinal obstruction causing trauma to the intestine, insufficiency of the intestinal secretion, and infection of the biliary tract. Some authors thought they had lessened the importance of *Bacillus coli* in urinary infections by demonstrating that it is often a part of a late flora and is not present in an early stage, unless it is associated, in the beginning, with other bacteria which disappear later on (Verney's etiologic binomial). It is now certain, however, that *Bacillus coli* is an entity of its own in the etiology of urinary infections, and it is admitted that in almost all cases of colibacilluria, the bacteria enter through the blood stream. The immunization therapy comprises various experiments which are founded on different principles. Vincent has prepared an anticolibacillary serum, deducing from his investigations that the bacillary antibodies do not pass into the urine. There are various types of vaccine, the autovaccine being indicated in most cases. They are broth-vaccine preparations based on the principles of lysis of Besredka. Use has also been made of d'Herelle's bacteriophage.

In treating the second part of the subject, Professor Bonanone spoke of the morbid manifestations resulting from fixation of the colon bacillus in the urinary tract, which occur locally and generally. It is now admitted that a state of bacillemia exists which sometimes influences the general condition of the patient. The fever may have a continual, remittent or intermittent course; sometimes it is pyemic in type. The anatomopathologic lesions consist mostly of tumefactions and reddening of the vesical and pelvic mucosa, epithelial desquamations, and occasionally ulcerations. The kidney presents centers of nodular infiltrations in the cortex, and striated ones in the medulla. The author then described a case of kidney abscess due to *Bacillus coli* and stated that the prognosis varies according to whether the colibacilluria is acute, subacute or chronic. In general, the colon bacillus fixes itself tenaciously in the urinary tract, so that it is difficult to eradicate; Bonanone did, however, obtain considerable amelioration in the general and local condition of the patient. The general therapy of colibacilluria should aim toward the urinary tract and the intestine. The alkalization of the urine with citrates or with intravenous injections of sodium bicarbonate, and the use of methenamine or other antiseptics, gives good results. If constipation is present it is also necessary to treat that condition.

In acute and chronic cases, local treatment in which the medicaments are introduced directly into the bladder and renal pelvis is of value. In some cases surgical treatment is indicated either to remove the cause of the obstacle or to cure serious lesions of the kidney, the pelvis or the intestine.

On the subject of relations, papers were read by Professor Tardo, who reported sixty cases of pyuria which he studied in collaboration with Professor Aresu; Professor Lilla, on a rare case of clinical manifestation of colibacillosis, and Professor Nisio, on experimental investigations on the effect of disturbances in the renal circulation on the growth of colon bacilli.

Soci Marogna, Cincino, Taddei, Pavone and Musumeci took part in the discussion.

The Regina Elena Maternity Hospital

In Rome, the central government has inaugurated, in the presence of Queen Elena, a maternity hospital which bears her name. It comprises two gratuitous and one paying department with a capacity of forty beds and has a prenatal consultation center, a milk house, a nursery, and rooms for the nurses and midwives. An obstetric nurse is constantly in attendance.

Ambulatoriums for Students

New ambulatoriums have been opened for university students near the Policlinic in Rome. At present only the ambulatoriums of medicine, surgery and orthopedics are finished, but clinics for the other specialties will be completed soon. The consultations are free of charge; poor students will also receive medicaments free of charge.

Death of Professor Dagnini

Prof. Giuseppe Dagnini, former assistant of the Clinica Medica and president of the Medicosurgical Society of Bologna, died in that city recently. He graduated in 1891 and was called almost immediately by Augusto Murri to his clinic; in 1896 he became privatdozent in special medical pathology; in 1903 he won a position as head physician of the Ospedale Maggiore of Bologna. He was the author of about fifty publications, nearly all of which deal with cardiology and neurology. In one of them, entitled "A Reflex Produced in Some Hemiplegic Cases by Means of Stimulation of the Cornea and Pressure on the Eyeball," he described the phenomenon termed Dagnini's oculocardiac reflex.

BERLIN

(From Our Regular Correspondent)

Jan. 19, 1929.

The Influence of the World War on Demographic Statistics

The effects of the World War on the demographic statistics of Europe are presented in a comprehensive publication of the League of Nations, from which Dr. Kurt Finkenrath cites in the *Deutsche medizinische Wochenschrift* the most important facts. In 1880, Germany, among the large countries of Europe, led the rest in the size of its birth rate; then came Italy, England and France, the figures in these countries ranging between 25 and 40 per thousand of population. In the following decades, an almost uniform decline in the birth rate was noted, so that the rate in Germany in 1919 had dropped almost to 30 per thousand, in England to 20, and in France to less than 20. Italy alone had not suffered to the same extent, and since 1908 had been the country with the highest birth rate: 32 per thousand. The war brought in France and in Germany at once a marked decline in the birth rate, which reached its lowest ebb in 1917: in Germany, 15; in France, less than 10, per thousand. In Italy, the decline did not become manifest until 1916, while the lowest birth rate was recorded in 1918: 18 per thousand. The least fluctuation was recorded in England, where the decline amounted to only from 2 to 3 per thousand. The rise of the birth rate began in Germany and Italy in 1918 but in France and England not until 1919, as the army of occupation had been still absent. In all countries except Germany, the birth rate of 1920 exceeded that of 1914 by from 1 to 4 per thousand. After 1920, the birth rate again declined in all countries in about the same proportion—to 26.4 per thousand in Italy, 18.3 in Germany, 18.1 in France and 16.7 in England. The other European countries also, that had not been engaged in the war, presented similar birth rates, the highest rates for Spain and the Netherlands having been 28.6 and 23.1, respectively. In the eastern part of Europe, however, countries that took part in the war are showing higher birth rates again: soviet Russia, 47 per thousand; Bulgaria, 37.7; Roumania, 34.7; Hungary, 25.2, and Czechoslovakia, 23.4.

This decline in the birth rate is, however, not synonymous with a decrease in the population, for in almost all European states the average life expectancy improved at the same time, owing to the general decline in the mortality. Whereas, before the war, the lowest mortality rate in any of the larger countries was between 20 and 30 per thousand, the losses in population in the period from 1914 to 1918 were so unusual that the decrease in population in France amounted to 18 per thousand. In Germany, the decrease in population from 1915 to 1918 amounted to 10 per thousand; in Italy, from 1917 to 1918, to 15 per thousand. England, on the other hand, showed no loss of population; but, in 1918, the increase in population was reduced almost to the zero point. During the postwar period, the increase in population in Germany was marked in the period of inflation, 1922 to 1924. But, in general, England and Germany both showed a considerable decline in the increase of population in the period after the war. France and Germany, of the countries that took part in the war, were the hardest hit as to their population. In 1927, the figures for the natural increase in population for Italy were 10.9 per thousand, or only 2 per thousand less than in the prewar period; for Germany the figures were 6.3 per thousand, or more than 5.3 per thousand less than before the war; for England, 4.4 per thousand, or 6.0 per thousand less; for France, 1.6 per thousand, or a slight increase of 0.7 per thousand as compared with the prewar period. In Russia, the increase in population in 1925 amounted to 21.1 per thousand. In Germany, the birth rate in the forty-nine large cities has been strikingly reduced, namely, to 13.4 per thousand, whereas in the rural regions the birth rate is 18.3 per thousand. There is no such difference in England. From the statistics of the League of Nations it appears, in general, that, with increasing civilization, there is an improvement in living conditions and an increase of the average age of the various age groups but that there is, at the same time, a decline in the birth rate. In the war and the postwar periods, the decrease in the birth rate has gone so far that in all countries, with the single exception of France, there has been a decline in the increase of the population.

Revocation of a Medical License

The license, that is, the testimonial given by the state after passing of the state examination and completing the year of internship, may, according to the federal law (section 29) that has been in force for sixty years, be withdrawn by the administration board when the falsity of the evidence on the basis of which the license was granted has been established, or when the holder of the license has lost the rights of a citizen, but in the latter event only for the duration of the deprivation of citizen's rights.

For many years, jurists as well as physicians have emphasized that these provisions are not sufficient to protect the interests of the medical profession or those of the general public. A physician who, for example, has been sentenced to the penitentiary for a grave misdemeanor may, after completing his sentence, resume his practice unhindered, although his colleagues may not think it advisable to readmit him to their inner circles. A physician suffering from mental disease may treat patients who know nothing of his condition and thus do great harm. In spite of such considerations, it has not heretofore been possible to overcome the formal juristic objections

to the introduction of changes in the law. Now, however, the governments of the several federal states have sent various proposed modifications to the representative medical organizations and have requested their opinion on them.

Paragraph 1.—The licenses designated in section 29 may be revoked by the board of administration (proposal 1): (1) if the falsity of the evidence on the basis of which the license was granted has been proved; (2) if the holder of the license has been deprived of the rights of a citizen, or (3) if facts have been adduced from which it is manifest that the holder of the license does not possess the necessary reliability for the exercise of his profession.

Paragraph 2.—The supreme government body may restore the license if revoked on the basis of paragraph 1, section 2, provided the holder has regained the rights of citizenship, and if revoked on the basis of paragraph 1, section 3, provided the reasons for the revocation have been removed.

Paragraph 1.—Proposal 2 suggests as a basis for revocation: (1) if the falsity of the evidence on the basis of which the license was granted has been proved; (2) if the holder of the license has been proved guilty of grave criminal or moral misdemeanors, or (3) if the holder of the license has been found, by reason of weakening of his mental and physical powers, unfit to practice his profession.

Paragraph 2.—The supreme government body may restore the license if revoked.

The executive committee of the Berlin Aerztekammer, or chamber of physicians, has considered carefully the foregoing proposals and has approved, with slight modifications, the following proposals of the chief speaker:

PROPOSALS OF THE CHIEF SPEAKER

Paragraph 1.—The licenses designated in section 29 may be revoked by the board of administration: (1) if the falsity of the evidence on the basis of which the license was granted has been proved; (2) if the holder of the license has been deprived of the rights of a citizen; (3) if the holder of the license has been proved guilty of grave criminal or moral misdemeanors, and (4) if the holder of the license, by reason of mental disease, is permanently incapacitated from practicing his profession.

If the question of the revocation of a license as a physician (surgeon, ophthalmologist, obstetrician) arises on the basis of section 2, 3 or 4, the board of administration must, before taking action in the matter, consult, in regard to the proposed withdrawal of license, the highest authority of the medical court of honor (in Prussia, the "Ehrengerichtshof für Aerzte"). If such authority disapproves of the revocation of license, the board of administration may not act in opposition to such decision.

If, on the basis of section 2, the license as physician (surgeon, ophthalmologist, obstetrician) has been legally withdrawn, the supreme government body may restore the license on securing the consent of the highest authority of the medical court of honor.

If the revocation of a license designated in section 29 has been legally pronounced on the basis of findings set forth in section 4, the person who held the license may demand a reopening of the proceedings before the same body that pronounced the revocation, provided the presuppositions set forth in section 4 no longer apply to his person.

Proposal 1, as suggested by the governments, appears to go the farthest and to fulfil best the demands of the situation; for, if (though only temporarily), for any reasons, a physician no longer possesses the necessary reliability for the exercise of his profession, it should be possible to deprive him of the right to function as a licensed physician. Unfortunately, in Germany, with its system of universal freedom to practice medicine, he would still be permitted to treat patients.

Marriages

EDWIN GREER, Berkeley, Calif., to Miss Lena Bleiker of Belleville, Ill., January 19, at Carson City, Nev.

MURRAY E. SWINEHART, Columbus, Ohio, to Mrs. Vesta E. Swisher of Middleport, Dec. 20, 1928.

WILLIAM ABBOTT WEAVER to Miss Ruth S. Mengel, both of Wilkes-Barre, Pa., February 12.

DAVIS T. HUNT, West Reading, Pa., to Miss Verna I. George of Palmerton, January 10.

Deaths

Charles Sheard, Toronto, Ont., Canada; Trinity Medical College, Toronto, 1878; past president of the Canadian Medical Association; formerly professor of preventive medicine, assistant in clinical medicine, pharmacy and pharmacology, and clinician in medicine, University of Toronto Faculty of Medicine; at one time chairman of the provincial board of health and medical health officer; aged 78; died, in February.

Victor Hugo Jackson ⊕ New York; University of Michigan Medical School, Ann Arbor, 1878; also a dentist; formerly professor of orthodontia, University of Buffalo; at various times a member of international medical and dental congresses and vice president of the International Dental Congress, St. Louis, 1904; author of "Orthodontia and Orthopedia of the Face"; aged 78; died, in January.

John L. Dickey, Wheeling, W. Va.; Jefferson Medical College of Philadelphia, 1883; member of the West Virginia State Medical Association; formerly member of the state board of health and school board; formerly on the staff of the Ohio Valley General Hospital; aged 74; died, February 5, of myocarditis.

Thomas Augustus Blaylock ⊕ Madill, Okla.; Marion-Sims-Beaumont Medical College, St. Louis, 1902; past president of the Marshall County Medical Society; aged 59; died, in January, at the Sherman (Texas) Hospital, of pneumonia, following an injury to his chest received in an automobile accident.

George Sanfield Ney, Port Huron, Mich.; Bellevue Hospital Medical College, New York, 1882; member of the Michigan State Medical Society; past president of St. Clair County Medical Society; formerly on the staff of the Port Huron Hospital; aged 74; died, January 24, of pernicious anemia.

Francis Arthur Scratchley, Nice, France; Medical Department of the University of the City of New York, 1881; formerly associate in nervous and mental diseases and chief of clinic, University and Bellevue Hospital Medical College; aged 70; died, January 29, of heart disease.

M. C. Thomas ⊕ Tuscaloosa, Ala.; Medical Department of the Tulane University of Louisiana, New Orleans, 1899; past president of the Tuscaloosa County Medical Society; on the staff of the Druid City Hospital; aged 54; died, January 11, of influenza.

Devillo John Nichols, Pottersville, Mo.; University of Michigan Medical School, Ann Arbor, 1871; member of the Missouri State Medical Association; aged 81; died, January 11, at the Christa Hogan Hospital, West Plains, of influenza and mastoiditis.

Edward Ellsworth Colglazier, Rush Center, Kan.; Eclectic Medical University, Kansas City, 1902; Kansas City College of Medicine and Surgery, 1920; aged 62; died, Dec. 23, 1928, at St. Rose Hospital, Great Bend, of perforated duodenal ulcer.

Henry Augustus Martelle, Hartford, Conn.; Johns Hopkins University School of Medicine, Baltimore, 1905; member of the Connecticut State Medical Society; served during the World War; aged 49; died, January 10, of chronic nephritis.

Thomas Joseph Shanahan, Brookline, Mass.; Harvard University Medical School, Boston, 1896; member of the Massachusetts Medical Society; aged 55; died, January 17, at the Peter Bent Brigham Hospital, Boston, of carcinoma of the colon.

William D. Heimer, Hamden, N. Y.; Medical Department of the University of the City of New York, 1877; past president of the Delaware County Medical Society; formerly coroner; aged 73; died, January 23, of arteriosclerosis.

Henry Plumb, Pleasanton, Kan.; Yale University School of Medicine, New Haven, 1861; formerly mayor and postmaster; Civil War veteran; aged 92; died, January 4, at Ormond, Fla., of valvular heart disease.

Ernest W. Layman ⊕ Terre Haute, Ind.; Hahnemann Medical College and Hospital, Chicago, 1899; aged 56; for many years on the staff of the Union Hospital, where he died, February 5, of tumor of the mediastinum.

John Bryan Fullmer ⊕ Emporium, Pa.; Jefferson Medical College of Philadelphia, 1918; president of the Elk County Medical Society; medical director of Cameron County; aged 44; died, February 12, of bronchopneumonia.

John Samuel Halsey, Vineland, N. J.; Medical Department of Columbia College, New York, 1892; formerly county coroner; aged 58; died, January 17, at the Jefferson Hospital, Philadelphia, of cirrhosis of the liver.

Robert P. Crump, Nitta Yuma, Miss.; University of Louisville (Ky.) School of Medicine, 1890; Kentucky School of Medicine, Louisville, 1895; aged 63; died, January 19, at Memphis, Tenn., of heart disease.

Francis J. W. Maguire ⊕ Detroit; Detroit College of Medicine and Surgery, 1895; formerly on the staff of St. Mary's Hospital; aged 60; died, February 1, of cerebral embolus, myocarditis and diabetes mellitus.

Walter Peter Nelson, Powers Lake, N. D.; Medical Department Hamline University, Minneapolis, 1908; aged 45; died, January 21, of exposure after losing his way in a blizzard while making a professional call.

William Petersmeyer, Ashton, Ill.; Medical Department of the University of Illinois, Chicago, 1898; member of the Illinois State Medical Society; aged 57; died, January 28, of toxemia following erysipelas.

Alfred William Hyde, Brookings, S. D.; Eclectic Medical Institute, Cincinnati, 1883; Chicago Homeopathic Medical College, 1883; aged 74; died, in December, 1928, of pneumonia, following influenza.

Frank Winne Brown, Laramie, Wyo.; University of Michigan Homeopathic Medical School, 1906; served during the World War; aged 45; died, January 25, in a local hospital, of heart disease.

William John McGrath, Syracuse, N. Y. Albany (N. Y.) Medical College, 1898; served during the World War; aged 52; died, January 17, at the Hospital of the Good Shepherd, of pneumonia.

Eugene Latreille, Montreal, Que., Canada; Montreal School of Medicine and Surgery, 1903; formerly professor of pathologic anatomy at his alma mater; aged 49; died suddenly, Nov. 9, 1928.

M. Alexander Mackintosh ⊕ Paterson, N. J.; Bellevue Hospital Medical College, New York, 1879; aged 76; died, January 12, at the Paterson General Hospital, of cerebral hemorrhage.

John W. Rickey, Moundsville, W. Va. (licensed, West Virginia, years of practice); member of the West Virginia State Medical Association; aged 86; died, January 24, of senility.

John Gilbert Young, Hamilton Ill.; Keokuk (Iowa) Medical College, 1895; served during the World War; aged 57; died, January 20, of lobar pneumonia and cirrhosis of the liver.

Robert Hardaway Jones, Petersburg, Va.; University of Maryland School of Medicine, Baltimore, 1882; aged 67; died, Dec. 19, 1928, of injuries received when struck by an automobile.

William C. Furney, Sharpsville, Ind.; Medical College of Indiana, 1891, Indianapolis; aged 73; died, February 4, at the Howard County Hospital, Kokomo, of cerebral hemorrhage.

Gracey Waddell, Bertrand, Mo.; Barnes Medical College, St. Louis, 1898; member of the Arkansas Medical Society; aged 70; died, January 12, at New Madrid, of pneumonia.

John S. Woodruff, Philadelphia; Medico-Chirurgical College of Philadelphia, 1895; aged 61; died, February 3, at the Roxborough Memorial Hospital, following an operation.

Laetitia L. Belau Alford, San Diego, Calif.; Chicago College of Medicine and Surgery, 1916; aged 50; died, Dec. 19, 1928, at the Mercy Hospital, of carcinoma of the liver.

John L. Brown ⊕ Camilla, Ga.; Louisville (Ky.) Medical College, 1891; past president of the Mitchell County Medical Society; aged 63; died, January 30, of heart disease.

John A. McGaughey ⊕ Chicago; Chicago Medical College, 1883; aged 68; died, February 6, at the Michael Reese Hospital, of cholecystitis and bronchopneumonia.

William Elkin Raken, Philadelphia; Jefferson Medical College of Philadelphia, 1908; served during the World War; aged 44; died, February 1, of heart disease.

Cyrus C. Kerlagon, Bismarck, Mo.; St. Louis Medical College, 1883; aged 73; died, January 30, at the Missouri Baptist Hospital, St. Louis, of appendicitis.

William Edward Ellis, Aptos, Calif.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1887; aged 66; died, January 30, of cerebral hemorrhage.

Annie Ives Glidden, Danville, Ill.; University of Michigan Medical School, Ann Arbor, 1894; aged 60; died, in February, of pneumonia, following influenza.

Thomas E. Dreher, Morgan City, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1897; aged 56; was hanged, February 1.

Henry J. Poppen, Holland, Mich.; University of Michigan Medical School, Ann Arbor, 1892; aged 61; died, January 27, at the University Hospital, Ann Arbor.

Edward L. Emerson, New Windsor, Ill.; Rush Medical College, Chicago, 1881; also a druggist; Civil War veteran; aged 82; died, February 2, of senility.

Horine Miles ⊕ Webster Groves, Mo.; Missouri Medical College, St. Louis, 1886; aged 64; died, January 17, at St. Luke's Hospital, St. Louis, of enteritis.

William J. Arnold ⊕ Chicago; Michigan College of Medicine, Detroit, 1884; aged 70; died, February 2, of cerebral embolism and edema of the lungs.

John Stephen Zvesper ⊕ Schulenburg, Texas; Memphis (Tenn.) Hospital Medical College, 1895; aged 58; died, January 20, of cerebral hemorrhage.

Jean Pierre Francez, Carencro, La.; Medical Department University of Louisiana, New Orleans, 1871; aged 79; died, Oct. 27, 1928, at Lafayette.

Richard Franklin Preston, Carleton Place, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1875; died, February 8, of pneumonia.

George Austin Rowe, Stockbridge, Mich.; University of Michigan Medical School, Ann Arbor, 1889; aged 70; died, January 29, of nephritis.

G. L. Saylor, Hibbing, Minn. (licensed, Minnesota, 1887); aged 77; died, February 1, of cerebral hemorrhage, which occurred in September.

William Edward Kuechenmeister ⊕ Pittsburgh; University of Michigan Medical School, Ann Arbor, 1921; aged 31; died, January 17.

John Hamill Finnegan ⊕ Bridgeport, Conn.; Maryland Medical College, Baltimore, 1912; aged 47; died, February 7, of septicemia.

Wellden Pyle ⊕ South Orange, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1921; aged 33; died, January 19.

Oliver Lee Crow, Findlay, Ill.; St. Louis College of Physicians and Surgeons, 1903; aged 50; died, January 23, of mastoiditis.

Hiram McElroy Dagg, North Kansas City, Mo.; Cleveland Medical College, 1879; aged 78; died, January 26, of pneumonia.

John Cushing Baker, Philadelphia; Jefferson Medical College of Philadelphia, 1926; aged 26; died, February 3, of pneumonia.

Samuel A. Keene, Baltimore; University of Maryland School of Medicine, Baltimore, 1865; aged 85; died, February 4, of senility.

Charles E. Bowers, Middletown, Pa.; Medico-Chirurgical College of Philadelphia, 1893; aged 60; died, Dec. 6, 1928.

George W. Kennard, Baltimore (licensed, Maryland, 1892); also a minister; aged 73; died, January 11, of heart disease.

Archibald Wood Hatcher, Huntsville, Ala. (licensed, Alabama, 1882); aged 78; died, January 8, of senility.

William Clyde Burns, Baltimore; Baltimore Medical College, 1890; aged 60; died, Dec. 18, 1928.

CORRECTION

George J. Baker Was Not a Physician.—THE JOURNAL, Nov. 17, 1928, published an obituary of Dr. George J. Baker of Detroit, who had been reported as having died in Spain. The George J. Baker of Detroit who died in Spain was not a physician. Dr. George J. Baker of Detroit is still among the living.

Bureau of Investigation

REDUC-IT

A Nostrum for Reducing High Blood Pressure Declared a Fraud

The somewhat imposingly-named Denver Research Laboratory at Denver, Colorado, put out a preparation which, it was claimed, would reduce high blood pressure. The product was called "Reduc-it." Some of the claims made for this preparation were:

"At last a compound has been properly prepared for reducing high blood pressure.

"Prevent apoplexy, paralysis, Bright's disease, rheumatism, eczema, boils, pimples and many other diseases caused from high blood pressure and impure blood.

"Reduc-it is a compound properly put up for the purpose of reducing high blood pressure and purifying the blood.

"For advertising purposes we are offering this compound for a short time only at the reduced price of $2.75 a box, postpaid to any address in the United States."

The postal authorities a few weeks ago notified the Denver Research Laboratory that it must show cause on January 25 why a fraud order should not be issued against it. No defense

High Blood Pressure

SAFELY, INEXPENSIVELY REDUCED AT HOME

High blood pressure is the forerunner of apoplexy, paralysis and Bright's disease.

Eczema, pimples and rheumatism are other ailments caused by high blood pressure and impure blood.

REDUC-IT—A Compound of commercial salts, correctly prepared by registered pharmacists is GUARANTEED to purify the blood and reduce the blood pressure, or money refunded.

REDUC-IT—Is entirely free from potassium iodide or other strong drugs and for that reason positively will not injure the heart or stomach.

REDUC-IT—At only $2.75 per box, postpaid to any address in the United States, will prove a very inexpensive means of reducing high blood pressure and improving health. Mail orders to

DENVER RESEARCH LABORATORY

P. O. Box 836 **Denver, Colorado**

Without the slightest obligation, we will be glad to send you a scale showing what normal blood pressure should be between the ages of 20 and 70. Ask for it.

was made and on February 19, 1929, Postmaster-General Harry S. New, on the recommendation of the Hon. Horace J. Donnelly, Solicitor for the Post Office Department, issued a fraud order and notified the postmaster at Denver, Colorado, to return all letters and other mail matter addressed to the Denver Research Laboratory to the senders with the word "Fraudulent" stamped on the outside of such letters.

The Memorandum of the Solicitor to the Postmaster-General brings out some interesting facts regarding the methods pursued in this particular piece of quackery. The Denver Research Laboratory was not a laboratory at all. It was a trade name adopted by one Gilliard W. John, who conducted the business from a "one-room-and-bath apartment," occupied by himself and his wife, at the Adele Apartments, 1915 Sherman Street, Denver. There were, of course, no physicians, chemists or pharmacists employed in connection with the business, although John advertised that his product was "compounded and inspected at the Denver Research Laboratory by registered pharmacists." John himself was formerly engaged in the mining business.

Those who answered the Denver Research Laboratory advertisements received the usual follow-up series of letters common to the trade. Those who purchased Reduc-it received a form-letter urging them to keep the Denver Research Laboratory informed of their progress and to "continue regularly with the use of Reduc-it." The letter further stated that, should the purchaser's particular case call for any "special suggestions and recommendations," the Denver Research Laboratory would gladly make such suggestions. Accompanying this form-letter was a question blank, which the user was requested to fill in and return to the Denver concern. This called for information from the purchaser regarding ailments other than high blood pressure. It also inquired as to the condition of his finances. There was still a third printed sheet that was sent to the purchasers of Reduc-it, containing more questions to be answered by the user. In this it was asked whether the purchaser had backache, weak kidneys, rheumatism, apoplexy, paralysis, Bright's disease and other conditions. The trick is an old one in the medical mail-order field. It permits the mail-order quack to sell these information blanks to other quacks who may be selling products for the various ailments tabulated in the blank. Thus the purchaser takes his place in the "sucker list." When the federal authorities questioned John regarding the "symptom blanks" that he sent out, asking him what his object was in so doing, John said to the inspector, "Figure it out for yourself." Later, however, he admitted that it served no purpose except, perhaps, the psychological effect it might have on the persons that received it.

The government inspectors found that John would sell his medicine to any person willing to purchase it, regardless of the symptoms the purchaser might have.

The preparation, Reduc-it, was made up of equal parts of cream of tartar, epsom salt and magnesium carbonate. The ingredients of a package that sold for $2.75 cost eleven cents! From his flier in the nostrum field the former miner, Gilliard W. John, doubtless concluded that he had struck "pay dirt"!

John advertised in about fifty papers, and, apparently, had no difficulty in finding newspapers that were willing to accept their share of the profits of this fraud for the purpose of furnishing the contact between the faker and the victim.

J. BAPTIST BUTTS

Another High-Blood-Pressure Specialty

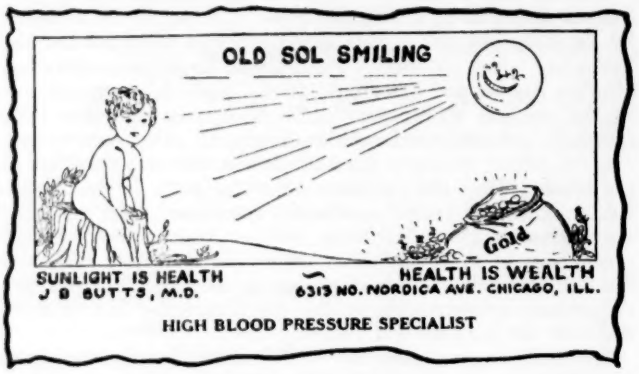
About a year ago THE JOURNAL began to receive inquiries from physicians regarding the claims being made by J. Baptist Butts, M.D., of Chicago, Illinois. This new voice crying in the wilderness reached the medical world through a two-page letter printed in imitation typewriting, single spaced. The letter opened with the request that the recipient would read Dr. Butts' essay on high blood pressure. It then stated that the doctor was 78 years old and had received his medical education at Trinity Medical College, Toronto, and the University of Illinois. Investigation fails to show that his name is on any alumni list of Trinity Medical College, but he did receive a diploma from the University of Illinois College of Medicine in 1898—when he was 48 years old.

Dr. Butts further stated that he was a member of the American Medical Association. He is not and never has been. He then explained that, in 1924, when he was "first affected by high blood pressure" he experimented on himself to seek a remedy for his ailment. This he claims to have discovered, and describes it as a liquid that must be made fresh and kept in dark-colored bottles, and that the patient must take it perpetually. The letter came to a close with the offer to the recipient to send "complete directions for making the remedy" on receipt of $5. Dr. Butts described his remedy as "a tested and guaranteed cure for high blood pressure," and offered to return the money if the remedy would not do what he said it would.

When Dr. Butts first started his advertising campaign, he, apparently, confined his mailing list to the physicians of the more sparsely settled of the western and southwestern states. Experience has taught him, evidently, that gullibility knows no state boundaries, for, in one of his most recent pieces of advertising, Dr. Butts tells a Boston physician that there are fifty-two physicians in the state of Massachusetts now using his formula!

Apparently, Dr. Butts does not confine the sale of his formula to the medical profession. One layman who purchased the formula writes that he "gave the treatment a trial of probably two or three months with no benefit whatever," and he, therefore, wrote for a refund, in accordance with the terms

of the purchase. In reply he got word from Dr. Butts, so he writes, that it seemed incredible that the remedy would fail and that it would be necessary for him (the layman) to send a sworn affidavit to that effect. The purchaser in question went to that expense and trouble, sent in the affidavit by registered mail, but at the time of writing to THE JOURNAL (two months later) had received no word—or refund—from Dr. Butts.



In order that Dr. Butts' epoch-making discovery may not be lost to medicine, $5 was sent to him for the formula. Here it is:

> "Take a fresh beef kidney and a pound of fresh beef liver. Cut the kidney into strips, separating the dark outside meat from the inner fatty, fibrous part. Cut into small pieces and put in a mild solution of salt water for an hour. Rinse through a colander. Cut the liver into small pieces and put it and the kidney in a double cooker, with a quart of water. Cook with as little heat as possible for three hours, being careful that the lower part of the cooker does not boil dry. Press out the liquid. If less than a quart add water to make up deficiency. When cold add enough salt to overcome the insipid taste. Then add cider vinegar until it has an acid taste. Keep in a cool place. Dose, a 2 ounce wine glassful, with the juice of an orange, morning and evening."

The circular states, further, that this mixture should be made fresh weekly, and sufferers from hypertension should make the use of Dr. Butts' kidney-liver-salt-vinegar mixture a part of their regular diet.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HIGH VOLTAGE ROENTGEN THERAPY OF NEOPLASMS

To the Editor:—Can you give me any information as to the dosage (milliamperage, peak voltage, filter, target distance and time of exposure) of high voltage roentgen therapy for malignant growths with metastases in the pelvis of a woman, aged 76? She is in a fair state of preservation except for a moderately severe chronic myocarditis and hypertension. How often should such treatments or exposures be repeated? Are the results obtained comparing favorably with those of radium therapy?

R. O. BASSNEUER, M.D., Sheboygan, Wis.

ANSWER.—The patient is in an inoperable condition and therefore roentgen treatment is indicated. The following technic has been found to be efficient: The peak kilovoltage is 200, the target distance is 65 cm., the milliamperage is 25, and the filter consists of 0.75 mm. of copper and 1 mm. of aluminum. If the anteroposterior diameter measures from 18 to 20 cm., two fields are used. Should the anteroposterior diameter be from 21 to 23 cm., three fields are used, one over the symphysis, one over the left buttock, and one over the right buttock. Should the patient measure more than 24 cm. in an anteroposterior diameter, four or even five fields are used. Two fields are placed anteriorly, a field over each of the buttocks, and one field sacrally. Care must be used to keep the fields separated at least 3 cm. The size of the fields should be 20 cm. in a longitudinal direction, and should extend downward from a plane drawn through the anterior superior spinous processes. The width of the fields is from 10 to 15 cm. depending on the number of fields used. If it is assumed that the x-ray tube is held in a stationary position, the patient should be placed in such a position that the center of the x-ray beam strikes the center of each field perpendicularly. This may be attained by the use of Sim's lateral position, or with pads especially built for this purpose.

A complete course consists of the application of 275 milliamperes to each field every third or fourth day, repeated five or six times. It is assumed that thus about 800 R units is applied to the center of the pelvis. However, a standardization of the output of each x-ray tube and transformer should be done to determine the time within which the "roentgen-ray dose" is attained. A repetition of such a course of treatment is not advisable.

Roentgen treatment of pelvic carcinoma does not give as good results as radium treatment, and radium treatment alone does not give as good results as a combination of radium and roentgen therapy unless the carcinomatous tumor is confined to an area of about 6 cm. in diameter in all directions. Therefore, the described course of roentgen therapy should be combined with a radium insertion of about 2,000 mg. element hours to insure the best results.

DRY CLIMATE WITH LOW ALTITUDE

To the Editor:—I have a patient in need of a dry climate at low altitude. She prefers the Southwest. Can you advise me regarding such a location?

J. L. EMENHISER, M.D., Hammond, Ind.

ANSWER.—San Antonio, Texas, probably offers the best advantages for your patient of any city at low altitude in the near Southwest. It is 660 feet above sea level and has an average temperature of 69 F. The climate is ideal. At higher altitudes, and farther west, El Paso, Texas, and Albuquerque, N. M., offer unusual advantages to patients in need of such locations. The elevation in and around El Paso varies from 3,700 feet in the valley to 4,000 feet on the mountain slopes and mesas. The average yearly temperature is 63.5 F. and the average humidity away from the river and irrigated tracts varies between 17 and 64. The average yearly rainfall is 9.24 inches, the third quarter being the wettest with 4.94 inches. Sunshine averages 82 per cent of the year around. Albuquerque offers similar advantages. In general, dryness and high altitudes go together, although extreme dryness at relatively low altitudes occurs in the desert areas.

PHARMACOLOGY OF THYMOL

To the Editor:—Please give me information in regard to thymol. What is it soluble in? What are its chemical properties, physiologic action, doses and usages? Since the article appeared in THE JOURNAL (Nov. 26, 1927, p. 1834) by Dr. Myers of Portland, I have been interested in thymol. I have had one case of actinomycosis of the jaw that cleared up under thymol by mouth. I have had many cases of aspergilli of the ear, external canal, that have cleared up under 2 per cent thymol in alcohol drops used twice a day at home, after first clearing up the canal, with office treatments, of all débris.

HARVEY B. SEARCY, M.D., Tuscaloosa, Ala.

ANSWER.—According to the U. S. Pharmacopeia, thymol occurs as large, colorless, transparent crystals, having an aromatic, thymelike odor, and a pungent aromatic taste. One gram of thymol is soluble in about 1,000 cc. of water, about 1 cc. of alcohol, 0.7 cc. of chloroform, 1.5 cc. of ether and in 1.7 cc. of olive oil. When thymol is triturated with camphor, menthol or chloral hydrate, the mixture liquefies. Even though almost insoluble in water, and hence but slowly absorbed, it is so completely taken up by the system that, after a 2 Gm. dose, none of it is found in the feces. The rapidity of its absorption is favored by alcohol or oils, so that poisoning occurs more readily in their presence. It is rapidly absorbed from hypodermic injection of oil solutions. Hence these should be avoided in the therapeutic use of thymol.

About half of the thymol is destroyed in the body; the remainder is chiefly eliminated in the urine paired with sulphuric and glyceronic acids. In doses of 1 Gm. it does not produce any symptoms excepting a feeling of warmth in the epigastrium. In large doses it causes gastro-intestinal irritation, tinnitus and deafness, dyspnea with slowing of respiration, acceleration followed by slowing of the pulse, and fall of temperature. In poisoning the symptoms are similar to those of phenol intoxication, except that there are no convulsions. At autopsy, congestion and inflammation of the kidneys are found, fatty degeneration of the liver, marked congestion of the lungs, and, in about half of the cases, hepatization of the lungs.

Its saturated aqueous solution has been recommended as an antiseptic mouth wash. It has been employed most especially

as anthelmintic in hookworm disease in doses of from 2 to 4 Gm. It is apt to ball when given in powder form, so that considerable masses of it are found in the feces. To prevent this it is best mixed with an equal quantity of lactose or sodium bicarbonate, which increases its efficiency.

TREATMENT OF PREEPITHELIOMATOUS HYPERKERATOSIS

To the Editor:—A robust man, aged 50, about two years ago, noticed a small skin lesion of the lower lip. It was about the size of a mustard seed and was dark brown. After thickening it would peel off and leave a tender, red base. This occurred repeatedly every six to ten weeks. It now measures 3/16 inch and is triangular. Please give diagnosis and usual treatment. Is a malignant condition liable to develop? Please omit name.

M.D., Indiana.

ANSWER.—The behavior of the lesion is characteristic of a preepitheliomatous hyperkeratosis. If the lesion is on the vermilion border of the lip it may be a squamous cell epithelioma, which is more resistant to irradiation than is the basal cell type. Nevertheless radiotherapy should be used before other methods are tried.

CEREBROSPINAL SYPHILIS

To the Editor:—Can you inform me what is the most approved technic for the intraspinal treatment of cerebrospinal syphilis? The use of biologically tested arsphenamine in 0.1 Gm. doses dissolved in spinal fluid has interested me because I have had favorable results for several years by doing a spinal tap thirty minutes after intravenous injection of 0.9 Gm. of neoarsphenamine.

DAVID BRYCE, M.D., Noroton Heights, Conn.

ANSWER.—The general opinion among clinical neurologists today is that the introduction of even small doses of arsphenamine or of mercury compounds injected into the spinal canal is of little value and often of great danger. Necrosis of the spinal cord from certain arsphenamine compounds has several times been reported. There is little evidence that direct injection of arsphenamine into the subarachnoid space is more rational than intravenous administration because the flow of the tissue fluid is probably toward the subarachnoid space. The old Swift-Ellis treatment has virtually been abandoned, although, in the hands of some, it gave good results. This treatment consisted in the intraspinal injection of centrifugated blood serum which had been withdrawn thirty minutes after intravenous injection of arsphenamine solution. The rationale of the treatment was unknown, as little arsenic could ever have been present in the serum. The spinal drainage, thirty minutes after intravenous injection of arsphenamine solution, is still used considerably and is of great value especially in conjuction with fever therapy by means of typhoid vaccine or malaria.

DETERMINATION OF HISTAMINE

To the Editor:—In the article on myofascitis by Dr. Fred H. Albee (THE JOURNAL, Nov. 3, 1928, p. 1364) he states that histamine was present in the feces in variable quantities, and in his case reports he mentions the presence of histamine as being found in the feces. What is the laboratory method employed in determining the presence and quantity of histamine?

G. M. RUSSELL, M.D., Billings, Mont.

ANSWER.—The method of determining histamine quantitatively is an involved procedure, requiring hydrolysis, extraction of the histamine by a suitable solvent, precipitation as a phosphotungstate, a series of purifications, and, finally, determination colorimetrically. The exact details of this method may be found in articles by K. K. Koessler and M. T. Hanke (*J. Biol. Chem.* **39**:497 [Oct.] 1919; **43**:543 [Sept.] 1920).

TREATMENT OF LEUKEMIA

To the Editor:—I am caring for a boy of 2½ years, the youngest in the family. Two of the family, a boy and a girl, have died of leukemia. A girl, the second in the family, is normal. This boy appears normal in every way, but the blood examination showed a secondary anemia and an increase in leukocytes, 70 per cent being mononuclear cells. Under mercury quartz lamp and a high iron diet, the blood condition has improved but the proportion of leukocytes remains the same. The bleeding and clotting time are normal. Please outline treatment.

W. CAMPBELL, M.D., Valley City, N. D.

ANSWER.—Such a child should receive optimal hygienic care, be freed from focal infection wherever it may be found, and might be given occasional courses of arsenic and iron therapy which should be kept under supervision. When there is evidence of progress of the abnormality, the patient should receive adequate roentgen treatment.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, March 5, 1929. Sec., Dr. Harry C. DeVighne, Territorial Medical Examining Board, Juneau, Alaska.

CALIFORNIA—Reciprocity: San Francisco, March 13, 1929. Sec., Dr. Charles B. Pinkham, Board of Medical Examiners, 420 State Building, Sacramento, Calif.

CONNECTICUT: Hartford, March 12-13, 1929. Sec., Dr. Robert L. Rowley, 79 Elm Street, Hartford, Conn.

CONNECTICUT—Homeopathic: New Haven, March 12, 1929. Sec., Dr. Edwin C. M. Hall, Homeo. Medical Examining Board, New Haven, Conn.

DISTRICT OF COLUMBIA: Washington, April 9, 1929. Sec., Dr. Edgar P. Copeland, Suite 110—1801 Eye Street, Washington, D. C.

IDAHO: Boise, April 2, 1929. Hon. Fred. E. Lukens, Commissioner of Law Enforcement, Medical Examining Board, Boise, Idaho.

ILLINOIS: Chicago, April 9-11, 1929. Supt. of Registration, Mr. V. C. Michels, Dept. of Registration and Education, Springfield, Ill.

MAINE: Portland, March 12-13, 1929. Sec., Dr. Adam P. Leighton, Board of Registration of Medicine, 192 State House, Portland, Me.

MASSACHUSETTS: Boston, March 12-14, 1929. Sec., Dr. Frank M. Vaughan, Board of Registration in Medicine, 144 State House, Boston, Mass.

MINNESOTA—Basic Science: Minneapolis, April 2, 1929. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., University of Minnesota, Minneapolis.

MONTANA: Helena, April 2, 1929. Sec., Dr. S. A. Cooney, State Capitol Building, Helena, Mont.

NEW HAMPSHIRE: Concord, March 14-15, 1929. Sec., Dr. Charles Duncan, State Medical Board, State House, Concord, N. H.

NEW MEXICO: Santa Fe, April 8-9, 1929. Sec., Dr. W. T. Joyner, 20-21 First National Bank Building, Roswell, N. M.

OKLAHOMA: Shawnee, March 12-13, 1929. Sec., Dr. J. M. Byrum, Board of Medical Examiners, Shawnee, Okla.

PHILIPPINE ISLANDS: Manila, March 5, 1929. Sec., Dr. Jose V. Gloria, Board of Medical Examiners, 341 Ronquilla Sta., Cruz, Manila, Philippine Islands.

PORTO RICO: San Juan, March 5, 1929. Sec., Dr. Diego A. Biascoechea, Board of Medical Examiners, 3 Allen Street, San Juan, Porto Rico.

WEST VIRGINIA: Charleston, March 5, 1929. Sec., Dr. W. T. Henshaw, Charleston, W. Va.

New York June Examination

Mr. Herbert J. Hamilton, chief of the New York State Medical Board, reports the written examination held at Albany, Buffalo, New York and Syracuse, June 25-28, 1928. The examination covered nine subjects and included 90 questions. An average of 75 per cent was required to pass. Of the 670 candidates examined, 590, including 16 osteopaths, passed and 80, including nine osteopaths, failed. One hundred and thirty-one physicians, including one osteopath, were licensed by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Number Licensed
Univ. of Arkansas School of Medicine	(1925-1)		1
Yale Univ. School of Medicine	(1927-1)	(1928-2)	3
George Washington Univ. Medical School	(1926-1)	(1927-2) (1928-2)	5
Georgetown Univ. School of Medicine	(1927-1)	(1928-6)	7
Howard Univ. School of Medicine	(1925-1)	(1926-1)	2
Univ. of Georgia Medical Department	(1924-1)		1
Emory Univ. School of Medicine	(1926-1)		1
Rush Medical College	(1928-2)		2
Northwestern Univ. Medical School	(1928-1)		1
Loyola Univ. School of Medicine	(1928-3)		3
State Univ. of Iowa College of Medicine	(1925-1)	(1926-1) (1928-1)	3
Univ. of Maryland School of Medicine and the College of Phys. and Surgs	(1925-1)	(1927-1) (1928-18)	20
Johns Hopkins Univ. School of Medicine	(1920-1)	(1927-2) (1928-1)	4
Harvard Univ. Medical School	(1926-1)		1
Boston Univ. School of Medicine	(1926-1)	(1928-1)	10
Tufts College Medical School	(1926-3)	(1927-4) (1928-6)	13
Univ. of Michigan Medical School	(1923-1)	(1927-1) (1928-2)	4
St. Louis Univ. School of Medicine	(1928-3)		3
Creighton Univ. School of Medicine	(1927-1)		1
Columbia Univ. College of Phys. and Surgs	(1926-1)	(1927-5) (1928-42)	48
Albany Medical College	(1928-23)		23
Univ. of Buffalo School of Medicine	(1928-49)		49
Long Island College Hospital	(1927-2)	(1928-81)	83
New York Homeopathic Medical College and Flower Hospital	(1928-56)		56
Syracuse Univ. Coll. of Med	(1927-1)	(1928-29)	30
University and Bellevue Hospital Medical College	(1927-3)	(1928-84)	87
Cornell Univ. Medical College	(1927-5)	(1928-32)	37
Eclectic Medical College	(1928-6)		6
Univ. of Pennsylvania School of Medicine	(1926-1)	(1927-2) (1928-3)	6
Jefferson Medical College of Philadelphia	(1927-1)	(1928-4)	5
Woman's Medical College of Pennsylvania	(1923-1)		1
Hahnemann Medical College and Hospital of Philadelphia, Homeopathic	(1926-1)	(1927-1)	2
Vanderbilt Univ. School of Medicine	(1926-1)		1
Univ. of Tennessee College of Medicine	(1928-1)		1

Meharry Medical College	(1927-1)	1
Univ. of Texas School of Medicine	(1926-1)	1
Univ. of Vermont College of Medicine	(1927-2) (1928-2)	4
Univ. of Virginia Dept. of Med	(1927-1) (1928-6)	7
Medical College of Virginia	(1928-3)	3
Marquette Univ. School of Medicine	(1927-1) (1928-1)	2
Dalhousie Univ. Faculty of Medicine	(1928-1)	1
Univ. of Toronto Faculty of Medicine	(1925-1) (1926-1) (1927-2) (1928-2)	6
Queen's Univ. Faculty of Medicine	(1916-1)	1
Univ. of Western Ontario Medical School	(1928-1)	1
McGill Univ. Faculty of Medicine	(1922-1) (1925-4) (1926-2) (1927-1) (1928-5)	13
Univ. of Witwatersrand, Africa	(1927-1)	1
Univ. of Vienna, Austria	(1923-1) (1925-1) (1927-1)*	3
German Univ. of Prague, Czechoslovakia	(1921-1)* (1922-1) (1924-1)*	3
Univ. of Bonn, Germany	(1925-1)	1
National Univ. of Ireland, Dublin	(1919-1)	1
Licentiate of the Royal College of Surgeons of Ireland	(1925-1)	1
Univ. of Cluj, Roumania	(1924-1)*	1
Univ. of Kharkov, Russia	(1923-1)*	1
Dragomanov Institute, Russia	(1920-1)*	1
Univ. of Saratov, Russia	(1922-1)*	1
Osteopaths		16

FAILED

Yale Univ. School of Medicine	(1926-2) (1927-1) (1928-2)	5
George Washington Univ. Medical School	(1927-1)	1
Georgetown Univ. School of Medicine	(1928-1)	1
Howard Univ. School of Medicine	(1923-1) (1926-1) (1927-3) (1928-1)	6
Univ. of Kansas School of Medicine	(1926-1)	1
Johns Hopkins Univ. School of Medicine	(1923-1) (1926-1)	2
Harvard Univ. Medical School	(1928-1)	1
Boston Univ. School of Medicine	(1926-1) (1928-1)	2
Tufts College Medical School	(1927-1)	1
Univ. of Michigan Medical School	(1927-1)	1
St. Louis Univ. School of Medicine	(1927-1)	1
Columbia Univ. College of P. and S.	(1926-1) (1928-1)	2
Albany Medical College	(1895-1)	1
Univ. of Buffalo School of Medicine	(1926-1) (1928-1)	2
Long Island College Hospital	(1928-2)	2
New York Homeopathic Medical College and Flower Hospital	(1928-2)	2
Syracuse Univ. College of Medicine	(1928-1)	1
Cornell Univ. Medical College	(1928-1)	1
Eclectic Medical College	(1928-1)	1
Univ. of Pennsylvania School of Medicine	(1927-1)	1
Jefferson Medical College of Philadelphia	(1928-1)	1
Woman's Medical College of Pennsylvania	(1922-1)	1
Meharry Medical College	(1923-1) (1925-2)	3
Univ. of Vermont College of Medicine	(1925-2) (1927-1)	3
McGill Univ. Faculty of Medicine	(1928-1)	1
National University, Athens	(1922-1)	1
Univ. of Budapest, Hungary	(1920-1)* (1921-1)	2
Univ. of Naples, Italy	(1909-1)* (1922-1) (1923-7) (1924-1)*	10
Univ. of Padua, Italy	(1917-*)	1
Univ. of Palermo, Italy	(1920-1)* (1922-1)	2
Univ. of Pavia, Italy	(1923-1)	1
Univ. of Pisa, Italy	(1925-1)	1
Univ. of Voronezh, Russia	(1920-1)*	1
Dragomanov Institute, Russia	(1916-1)* (1921-1)* (1922-1)*	3
Univ. of Odessa, Russia	(1922-1)*	1
Univ. of Saratov, Russia	(1922-1)*	1
Donskey Univ. Rostoff on the Don, Russia	(1919-1)*	1
University of Madrid (Central Univ. of Spain), Madrid	(1920-1)*	1
Univ. of St. Joseph, Beirut	(1921-1)	1
Osteopaths		9

LICENSED BY ENDORSEMENT

College	Year Grad.	Endorsement with
Univ. of Arkansas School of Medicine	(1923)	Tennessee
College of Physicians and Surgeons (Med. Dept. of the Univ. of Southern California)	(1919)	California
Univ. of Colorado School of Medicine	(1922)	Wyoming
Yale Univ. School of Medicine	(1927)	Delaware
George Washington Univ. Medical School (1924) California	(1915) (1922)	Dist. Colum.
Georgetown Univ. School of Medicine	(1916) Iowa; (1896)	Porto Rico
Howard Univ. School of Medicine	(1912)	Virginia
Emory Univ. School of Med	(1917)	S. Carolina
Rush Med. Coll.	(1919) California; (1909) (1910)	Illinois
Northwestern Univ. Medical School	(1907) Illinois; (1920)	New Jersey
Bennett Medical College, Chicago	(1909)	Virginia
Univ. of Illinois College of Medicine	(1905)	Illinois
American Medical Missionary College, Chicago	(1906)	Michigan
Loyola Univ. School of Medicine	(1926)	Tennessee
Indiana Univ. School of Medicine	(1916)	Indiana
University of Louisville School of Medicine	(1925)	Indiana
Tulane Univ. of Louisiana School of Medicine	(1908) Arkansas; (1918)	Louisiana
Univ. of Maryland School of Medicine and the College of P. and S.	(1903) Florida; (1921) (1927)	Maryland
College of P. and S., Baltimore	(1881)†; (1911)	Mass.
Baltimore Medical College	(1903) Connecticut; (1906)	New Jersey
Baltimore Univ. School of Medicine	(1899)	Maryland
Johns Hopkins Univ. School of Medicine	(1923) (2) Maryland; (1921)	Michigan
Horvard Univ. Medical School (1918) Maine; (1923) Massachusetts; (1912) New Jersey; (1916) Porto Rico	(1911)	R. Island
Tufts College Medical School	(1911) (1922) Massachusetts; (1915)	R. Island
Univ. of Minnesota Medical School	(1895) (1916)	Minnesota
Minneapolis College of Phys. and Surgs	(1897)	Minnesota
Univ. of Neb. Coll. of Med	(1922) Nebraska; (1921)	Iowa
Columbia Univ. College of Phys. and Surgs	(1925)	New Jersey
Eclectic Medical College	(1916)	Ohio
Miami Medical College, Cincinnati	(1899)	Iowa
Ohio State Univ. College of Medicine	(1926)	Ohio
Univ. of Cincinnati College of Med	(1928)	Ohio
Univ. of Oklahoma School of Medicine	(1922)	Oklahoma
Univ. of Pennsylvania School of Medicine	(1927) (2) New Jersey; (1905) Ohio; (1915)	Texas
Jefferson Medical College of Philadelphia	(1909) New Jersey; (1916)	Penna.
Woman's Medical College of Pennsylvania	(1905)	Penna.
Hahnemann Medical College and Hospital of Philadelphia, Homeopathic	(1927)	New Jersey
Medico Chirurgical College of Philadelphia	(1914)	Penna.
Univ. of Tennessee College of Medicine	(1916) Tennessee; (1922)	Texas
Univ. of Texas School of Medicine	(1908)	Texas
Univ. of Vermont College of Medicine	(1912) Massachusetts; (1917) (1921)	Vermont
Medical College of Virginia	(1925) (2) (1926)	Virginia
McGill Univ. Faculty of Medicine	(1922)	Ontario
Univ. of Montreal Faculty of Medicine	(1904)	Quebec
Univ. of Vienna, Austria	(1901)*	Maryland
Catholic University, Louvain	(1902)	†
Victoria University, Manchester	(1915)	†
Univ. of Sheffield, England	(1920)	†
Univ. of Naples, Italy	(1920) New Jersey; (1883)* (1914)*	†
Faculty of Medicine of the Univ. of San Nicholas of Hidalgo, Morelia, Mexico	(1912)	Indiana
Univ. of Voronezh, Russia	(1915)	Mass.
Univ. of Kharkov, Russia	(1913)*	†
Dragomanov Institute, Russia	(1883)* (1917)*	†
Univ. of Moscow, Russia	(1904)*	†
Univ. of Geneva, Switzerland	(1911)*	Illinois
Yale Univ. School of Medicine	(1926) (2) (1927)	N. B. M. Ex.
Rush Medical College	(1924) (1928)	N. B. M. Ex.
Loyola Univ. School of Medicine	(1928)	N. B. M. Ex.
Indiana Univ. School of Medicine	(1925)	N. B. M. Ex.
Univ. of Kansas School of Medicine	(1923)	N. B. M. Ex.
Johns Hopkins Univ. School of Medicine	(1922) (1925)	N. B. M. Ex.
Harvard Univ. Medical School	(1920) (1924) (1925) (2) (1926) (4) (1927) (2)	N. B. M. Ex.
Columbia Univ. College of Phys. and Surgs	(1925) (3) (1926) (4) (1927) (3)	N. B. M. Ex.
Univ. of Buffalo School of Medicine	(1926)	N. B. M. Ex.
Cornell Univ. Med. College	(1925) (1926) (3)	N. B. M. Ex.
Univ. of Pennsylvania School of Medicine	(1923)	N. B. M. Ex.
Jefferson Medical College of Philadelphia	(1927)	N. B. M. Ex.
Univ. of Vermont College of Medicine	(1926) (2)	N. B. M. Ex.
Univ. of Virginia Dept. of Medicine	(1925)	N. B. M. Ex.
Univ. of Toronto Faculty of Medicine	(1927)	N. B. M. Ex.
Osteopath		New Jersey

* Verification of graduation in process.
† Licensed on presentation of diploma.

Book Notices

SERIOUS SYMPTOMS IN CHRONIC HEART DISEASE. By Harrington Bennett Munroe, M.D. Cloth. Price, $2. Pp. 80. Los Angeles: Frederick G. Andrews Press, 1928.

The author states in his preface that the "book has been prepared to aid the busy practitioner in the recognition, interpretation, and valuation of those outstanding signs and symptoms which, from the new viewpoint, are considered serious in chronic heart disease." In eighty pages of large type well spaced and with wide margins, the author attempts to give what he considers the newer aspects of cardiac enlargement, murmurs, aneurysm, hypertension, the various arrhythmias, and what is entitled the cardiac exhaustion syndrome, which includes angina pectoris, in a palatable and easily assimilable form. A practitioner should not be so busy that he cannot take time to know what he is doing and why he is doing it. It is doubtful, however, whether he would secure sufficient guidance from so brief and inadequate a treatise.

LA RÉDUCTION DES FRACTURES SOUS L'ÉCRAN RADIOSCOPIQUE: Son application en particulier aux fractures de l'extrémité inférieure du radius et du cou-de-pied. Par le Docteur Radutzesco, chirurgien de l'Hôpital „Regina Elisabeta" de Bucarest. Préface de M. Pierre Duval. Paper. Price, 50 francs. Pp. 196, with 125 illustrations. Paris: Masson & Cie, 1928.

In the introduction Duval says that the author has been working for two years in his clinic in charge of the treatment of fractures. The first part of the book is a series of short chapters epitomizing the main points in fractures, followed by some general considerations covering the subject of reduction of fractures by manifestation under the fluoroscope, including the arrangement of apparatus, the danger of roentgen-ray exposure and the general technic. The main portion of the work covers the methods of fluoroscopic reduction of two types of fractures; those of the lower extremity of the radius, and those of the ankle. The methods of examination and diagnosis, reduction, splinting and after-treatment are entered into in detail. There are several excellent illustrations to demonstrate the methods used and some line drawings to show pathologic conditions

and types of splints employed in specific fractures, the records of which are appended. A summary printed in six different languages ends the volume. The bibliography is taken almost entirely from French writers. For the surgeon who desires specific information on the subject of fluoroscopic reduction of the two types of fractures mentioned and a collection of records of patients thus treated, this text furnishes material for study.

STERILITY IN WOMEN, DIAGNOSIS AND TREATMENT. By Sidney Forsdike, M.D., B.S., F.R.C.S., Surgeon to the Hospital for Women, Soho Square, London. Cloth. Price, $3.50. Pp. 133, with 25 illustrations. New York: William Wood & Company, 1928.

This is a short and timely book on sterility based chiefly on the author's personal experience, but he also includes brief discussions of commonly used diagnostic procedure and enlarges on those which he has found practical. The methods for determining tubal patency are described. Forsdike is inclined to favor the visual method, with the use of iodized oil, over the Rubin test. Both methods, he concludes, have earned an important place in the diagnosis and treatment of sterility. The necessity of great care in interpreting the roentgenograms taken after iodized oil instillation is emphasized, and many of them are reproduced in the book. One wonders how some of the diagnoses are made from the films shown. But he warns that repeated examinations may be required even for several days before a definite conclusion can be reached. The book is direct, informative and practical and will be found of value to those interested in the study of human fertility and sterility.

HANDBUCH DER NORMALEN UND PATHOLOGISCHEN PHYSIOLOGIE MIT BERÜCKSICHTIGUNG DER EXPERIMENTELLEN PHARMAKOLOGIE. Herausgegeben von A. Bethe, G. v. Bergmann, G. Embden und A. Ellinger. VI Band, 2 Hälfte: Blut und Lymphe. 2 Teil: Blut, Lymphsystem. Von W. Griesbach, B. Huber, F. Laquer, E. Meyer, usw., usw. Paper. Price, 46 marks. Pp. 667-1136, with 69 illustrations. Berlin: Julius Springer, 1928.

This completes volume 6 of the Handbuch, the first half of which was reviewed in these pages, Dec. 15, 1928. An outline of its contents comprises the following topics: total volume of blood, the leukocytes, blood formation at high altitudes; the physiology of the hematopoietic organs; diseases of the blood; the lymph, lymph glands and the lymphatic system, and the water metabolism of plants. Slowly but surely the editors are completing the stupendous task imposed on themselves and associates in bringing this useful work to conclusion. Since it deals with the normal and pathologic physiology, the set as a whole belongs in every biologic library, hospital, research laboratory and clinic, though the price threatens to be prohibitive for the individual. The discussions are fair and authoritative, the bibliography particularly helpful. The sections of the many volumes already published (eleven) are written with the assumption that the reader possesses some general knowledge of the elementary aspects of the subject matter treated. The present volume is no exception to the general plan. In the interest of the medical and biologic professions, attention is called to this valuable handbook, which many physicians have found helpful in their problems.

RECENT ADVANCES IN OBSTETRICS AND GYNÆCOLOGY. By Aleck W. Bourne, B.A., M.B., B.Ch., Obstetric Surgeon to Out-Patients, St. Mary's Hospital. Second edition. Cloth. Price, $3.50. Pp. 382, with 67 illustrations. Philadelphia: P. Blakiston's Son & Company, 1928.

This edition contains much that is new, but the book is essentially a review of the progress of obstetrics and gynecology in Great Britain, for there are relatively few references to American, German or French contributions. This is not true, however, of the three chapters written by other specialists. Furthermore, credit is not always given to the original source. For example, the reference quoted for the Kielland forceps is not the original one by Kielland but one that appeared many years after at least ten much better articles had been published. Likewise the author speaks of Polak's modification of the cervical cesarean section when he should have used the name of Beck or De Lee. In the discussion on maternal mortality a list is printed showing that the United States has the highest mortality among fourteen nations; but Bourne correctly says that it is not possible to make a comparison between England and the United States because of great variations in administration. Instructive illustrations enhance the chapter on fetal death. In the discussion on placenta praevia, recommendation is not made of transfusion and this is surely a life-saving measure for many patients; nor is mention made of magnesium sulphate in the treatment of eclampsia, although this drug has been found to be valuable. The Gwathmey method of synergistic analgesia is not reported, and nothing is said of the value of local anesthesia for various obstetric operations. The author rightly emphasizes in his chapter on the endocrines that, except for the ovarian hormones which give promise of success, endocrine gland therapy in gynecology has been unsatisfactory. For the treatment of prolapse of the uterus the Fothergill operation is favored. This is a vaginal operation little known in the United States. The book is clearly printed, the illustrations are instructive, and the text is well written. However, the contents are probably more valuable for British than for American physicians because of the large number of collective reviews in both obstetrics and gynecology published in this country every year.

LEUCOPLASIE ET KRAUROSIS VULVAIRES. Etude anatomo-pathologique, traitement chirurgical. Par C. Sobre-Casas, chef du service de gynécologie de l'Hôpital Torcuato de Alvéar, Buenos-Aires, et Felipe F. Carranza, chef du service de gynécologie de l'Institut de médecine expérimentale. Préface du Professeur J. L. Faure. Paper. Price, 30 francs. Pp. 119, with illustrations. Paris: Masson & Cie, 1928.

This book is a contribution on the still obscure conditions known as leukoplakia and kraurosis vulvae. The authors report the unusually large number of thirty-seven personal cases and discuss the symptomatology, diagnosis, etiology, pathologic anatomy and treatment of these afflictions. The subjects are important because the conditions described represent epithelial alterations which may be considered as forerunners of cancer and which must be treated as promptly as possible. The treatment recommended is surgery and there are illustrations of the authors' operation. Irradiation alone has proved insufficient. The book is beautifully illustrated and there are many clear photomicrographs. The typography is clear and the language easily understandable.

PROCEEDINGS OF A CONFERENCE ON RHEUMATIC DISEASES. Held at Bath, May, 1928. Cloth. Price, 5/ and 5/6 net (by post). Pp. 292. Bath: Hot Mineral Baths Committee of the Bath City Council, 1928.

A conference held at Bath, last year, was devoted to a discussion of the so-called rheumatic diseases and of the varying views held with regard to their etiology and treatment. It was essentially an English conference but was participated in by several physicians from the United States and from the continent. It is unfortunate that in the space of two days it was attempted to cover the entire field of joint disorders, from the rheumatic fever of childhood to the various diseases of the joints encountered in later life, for much was discussed briefly which the reader would gladly hear more about in detail. All kinds of rheumatic diseases are taken up as a whole and discussed under three sections: social and general aspects, causation and treatment. As there are fifty-eight different papers, it is impossible to give an adequate conception of the discussion. In spite of the brevity imposed, the report is full of valuable material extending the horizon of that which is known about joint diseases.

LEHRBUCH DER TOXIKOLOGIE FÜR STUDIUM UND PRAXIS. Von Ferdinand Flury, Professor der Pharmakologie an der Universität Würzburg, und Heinrich Zangger, Professor der gerichtl. Medizin an der Universität Zürich. Paper. Price, 29 marks. Pp. 500, with 9 illustrations. Berlin: Julius Springer, 1928.

This is a typically German, thorough and conservative textbook on poisons, with a general section including references to the German law on the subject, and a special section containing a more thorough discussion of war gases and of animal poisons than is generally found in American books on toxicology.

DAS PHARMAKOLOGISCHE INSTITUT ZU TÜBINGEN UND SEINE EINRICHTUNGEN FÜR UNTERRICHT UND FORSCHUNG. Von Professor Dr. C. Jacobj, Vorstand des Instituts. Paper. Pp. 28, with illustrations. Tübingen, 1927.

This is a description of the plans and equipment of the Pharmacologic Institute at Tübingen, with illustrations of some of the laboratory rooms as well as ground plans. It might well serve as an inspiration to those who have a voice in the designing of a pharmacologic laboratory or in the setting aside of appropriations for it.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

DIE CHIRURGIE DER BRUSTORGANE. Von Ferdinand Sauerbruch. Band I: Die Erkrankungen der Lungen. Teil 1: Anatomie. Allgemeine pathologische Physiologie. Allgemeine Diagnostik. Allgemeine Technik. Erkrankungen der Brustwand. Verletzungen von Brustfell und Lungen. Eitrige und Brandige entzündungen der Lungen. Bronchektasen. Operation der Embolie der Lungenarterien. Von H. Alexander, H. Chaoul, und W. Felix. Third edition. Cloth. Price, 188 marks. Pp. 916, with 916 illustrations. Berlin: Julius Springer, 1928.

Third edition of the most important work available on surgery of the chest.

LIPIODOL IN THE DIAGNOSIS OF THORACIC DISEASE. By F. G. Chandler, M.A., M.D., F.R.C.P., Physician with Charge of Out-Patients, Charing Cross Hospital, and W. Burton Wood, M.A., M.D., M.R.C.P., Physician with Charge of Out-Patients, City of London Hospital for Diseases of the Heart and Lungs. Cloth. Price, $3.50. Pp. 133, with 47 illustrations. New York: Oxford University Press, 1928.

Beautifully illustrated monograph on the use of lipiodol in diagnosis of diseases of the chest.

DIE MALARIA IN IHRER BEDEUTUNG FÜR DIE GESCHICHTE ROMS UND DER RÖMISCHEN CAMPAGNA. Eine kulturhistorische Studie. Von Angelo Celli, Professor der Hygiene an der Universität Rom. Herausgegeben von Anna Celli-Fraentzel. Mit einem Geleitwort von Prof. Dr. Henry E. Sigerist. Paper. Price, 12 marks. Pp. 118, with 1 illustration. Leipzig: Georg Thieme, 1929.

A monograph revealing the relationship of malaria to the decline of Roman civilization.

METHODS OF BIOLOGICAL ASSAY. By J. H. Burn, M.A., M.D., Director of the Pharmacological Laboratory of the Pharmaceutical Society of Great Britain. With an introduction by H. H. Dale, C.B.E., R.S., M.D. Cloth. Price, $2.55. Pp. 126, with 22 illustrations. New York: Oxford University Press, 1928.

Authoritative work describing use of animals in assay of drugs and biologics.

LE DIAGNOSTIC DANS LES AFFECTIONS DE LA COLONNE VERTÉBRALE (CHEZ L'ADULTE). Par P. Oudard, A. Hesnard, et H. Coureaud, professeurs a l'école d'application du service de Santé de la Marine. Préface du Professeur Sicard. Paper. Price, 36 francs. Pp. 256, with 75 illustrations. Paris: Masson & Cie, 1928.

French monograph on disturbances of the spine.

DER INTESTINALE INFANTILISMUS UND ÄHNLICHE FORMEN DER CHRONISCHEN VERDAUUNGSSTÖRUNG: Ihre Behandlung mit Früchten und Gemüsen. Von Priv.-Doz. Dr. G. Fanconi, Oberarzt der Klinik. Paper. Price, 11 marks. Pp. 202, with illustrations. Berlin: S. Karger, 1928.

On the dietary treatment of intestinal maldevelopment and similar disturbances.

CHIRURGIE DES VOIES BILIAIRES: SPIRO-CHOLÉCYSTOSTOMIE. Par C. Sobre-Casas, chef du service de gynécologie de l'Hôpital Torcuato de Alvéar (Buenos-Aires). Préface du Pr. J.-L. Faure. Paper. Price, 35 francs. Pp. 119, with 33 illustrations. Paris: Masson & Cie, 1928.

Monographic consideration of surgery of the gallbladder with numerous diagrammatic illustrations.

OLD MASTERPIECES IN SURGERY: Being a Collection of Thoughts and Observations Engendered by a Perusal of Some of the Works of Our Forbears in Surgery. By Alfred Brown, M.D. Boards. Price, $8. Pp. 263, with illustrations. Omaha: Privately Printed, 1928.

Beautiful presentation of ancient surgical contributions and also many from the middle ages.

DIE STÖRUNGEN DES BEWUSSTSEINS: Klinisch-diagnostische Studien für Ärzte und Studierende. Von Prof. M. Rosenfeld. Direktor der Psychiatrischen und Nervenklinik in Rostock. Paper. Price, 16 marks. Pp. 247. Leipzig: Georg Thieme, 1929.

Monographic consideration of psychiatric problems.

RAUSCHGIFTE UND SUCHTEN: Weltwirtschaftliche und soziologische Betrachtungen zu einem medizinischen Thema. Von Dr. phil. Fritz Redlich. Paper. Price, 4.40 marks. Pp. 98. Bonn: Kurt Schroeder, 1929.

Concerning opium and similar poisonings.

TREATMENT OF VENEREAL DISEASE IN GENERAL PRACTICE. By E. T. Burke, D.S.O., M.B., Ch.B. Cloth. Price, $1.75. Pp. 162, with 8 illustrations. New York: Oxford University Press, 1928.

Small work with the British technic for routine handling of venereal disease.

A HANDBOOK FOR THE DIABETIC. By Albert H. Rowe, B.S., M.S., M.D. Cloth. Price, $2.50. Pp. 129, with 4 illustrations. New York: Oxford University Press, 1928.

Another guide to the diabetic patient concerning his diet and his insulin.

CHILD HEALTH AND CHARACTER. By Elizabeth M. Sloan Chesser, M.D. Cloth. Price, $1.50. Pp. 204. New York: Oxford University Press, 1927.

Brief guide on child training and mentality.

THE EPIDEMIOLOGY OF LEPROSY IN AUSTRALIA. Being the Report of an Investigation in Australia During the Years 1923-1925 Under the Terms of the Wandsworth Research Scholarship of the London School of Tropical Medicine. By Cecil Cook, M.B., Ch.M., D.T. M. & H., Wandsworth Research Scholar. Commonwealth of Australia, Department of Health. Service Publication Number 38. Paper. Pp. 303, with illustrations. Melbourne: H. J. Green, 1927.

PRAKTISCHE DIFFERENTIALDIAGNOSTIK FÜR ÄRZTE UND STUDIERENDE. Herausgegeben von Professor Dr. Georg Honigmann. Band I: Innere Medizin. Teil 3: Differentialdiagnose der Erkrankungen der Niere des Stoffwechsels und der endokrinen Drüsen. Von Dr. Otto Porges, Professor an der Universität Wien. Paper. Price, 3 marks. Pp. 175-215. Dresden: Theodor Steinkopff, 1929.

THE HISTORY OF THE INTESTINAL INFECTIONS (AND TYPHUS FEVER) IN AUSTRALIA—1788-1923. By J. H. L. Cumpston, M.D., D.P.H., Director-General of Health, and F. McCallum, M.B., B.S., D.P.H., Quarantine Officer. Commonwealth of Australia, Department of Health, Service Publication, no. 36. Paper. Pp. 738, with 54 illustrations. Melbourne: H. J. Green, 1927.

TRANSACTIONS OF THE EIGHTH ANNUAL CONFERENCE OF STATE SANITARY ENGINEERS. Prepared by Direction of the Surgeon General. Treasury Department. United States Public Health Service. Public Health Bulletin No. 183, October, 1928. Paper. Price, 25 cents. Pp. 133, with illustrations. Washington, D. C.: Supt. of Doc., Government Printing Office, 1928.

PRAKTISCHE DIFFERENTIALDIAGNOSTIK FÜR ÄRZTE UND STUDIERENDE. Herausgegeben von Professor Dr. Georg Honigmann. Band I: Innere Medizin. Teil 7: Differentialdiagnose der Infektionskrankheiten. Von Dr. Albert Herz, Privatdozent an der Universität Wien. Paper. Price, 6 marks. Pp. 447-552. Dresden: Theodor Steinkopff, 1929.

QUALITATIVE AND VOLUMETRIC ANALYSIS FOR MEDICAL STUDENTS. By H. Lambourne, M.A., M.Sc., F.I.C., Head of the Chemistry Department, the Polytechnic, and J. A. Mitchell, M.Sc., Lecturer in the Chemistry Department, the Polytechnic. Cloth. Price, $1.50. Pp. 64. New York: Oxford University Press, 1928.

THE COLLOID CHEMISTRY OF PROTOPLASM. By L. V. Heilbrunn, Assistant Professor of Zoology, University of Michigan. Volume I. of Protoplasma Monographien. Herausgegeben von R. Chambers, E. Faure und anderen. Paper. Price, 19 marks. Pp. 356, with 15 illustrations. Berlin: Gebrüder Borntraeger, 1928.

HEALTH AND WELFARE. Survey and Appraisal of the City of Fort Worth, Texas. By Dr. L. H. Martin, Director Public Health and Welfare, Fort Worth, Texas. Outline for general administration included in this report. October, 1928. Paper. Pp. 140. Fort Worth: Department of Public Health and Welfare, 1928.

THE HISTORY OF DIPHTHERIA, SCARLET FEVER, MEASLES AND WHOOPING COUGH IN AUSTRALIA—1788-1925. By J. H. L. Cumpston, M.D., D.P.H., Director General of Health. Commonwealth of Australia, Department of Health, Service Publication, no. 37. Paper. Pp. 617. Melbourne: H. J. Green, 1927.

ERGEBNISSE DER LIPOIDSTOFFWECHSELFORSCHUNG MIT BESONDERER BERÜCKSICHTIGUNG DER VERHÄLTNISSE IM KINDESALTER. Von Dr. Hans Knauer, Assistenzarzt an der Universitätskinderklinik zu Breslau. Paper. Price, 7 marks. Pp. 164, with 23 illustrations. Berlin: S. Karger, 1928.

TWENTY-SIXTH ANNUAL REPORT, 1927-1928, OF THE IMPERIAL CANCER RESEARCH FUND UNDER THE DIRECTION OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON AND THE ROYAL COLLEGE OF SURGEONS OF ENGLAND, NOVEMBER, 1928. Paper. Pp. 15. London, 1928.

FIFTH ANNUAL REPORT OF THE STATE PUBLIC WELFARE COMMISSION OF RHODE ISLAND TO THE GENERAL ASSEMBLY AT ITS JANUARY SESSION, 1928, FOR THE FISCAL YEAR, DECEMBER 1, 1926, TO NOVEMBER 30, 1927. Paper. Pp. 258. Providence, 1928.

REPORT OF THE UNION OF SOUTH AFRICA UPON THE WORK OF THE MINERS' PHTHISIS MEDICAL BUREAU FOR THE YEAR ENDED JULY 31, 1927. Paper. Price, 5s. 6d. Pp. 61. Pretoria: Government Printing and Stationery Office, 1928.

FOURTEENTH BIENNIAL REPORT OF THE STATE BOARD OF CONTROL (SECOND BIENNIAL REPORT DEPARTMENT OF PUBLIC INSTITUTIONS) OF MINNESOTA PERIOD ENDED JUNE 30, 1928. Cloth. Pp. 228. St. Paul, 1928.

PROCEEDINGS OF THE MEDICAL ASSOCIATION OF THE ISTHMIAN CANAL ZONE, 1927. Volume XV. Paper. Pp. 67, with 6 illustrations. Balboa Heights, Canal Zone: The Panama Canal, 1928.

CIDADE DO SALVADOR BAHIA. Tabellas demographicas de 1926. Paper. Pp. 186. Sao Paulo, 1927.

Medicolegal

Liability of Hospital for Suicide

(Bloss v. Dr. C. R. Woodson Sanitarium Co. et al. (Mo.), 5 S. W. (2d) 367)

The plaintiff alleged that the defendant failed to protect her husband from self-destruction while he was an inmate in the defendant's sanatorium, where he hanged himself. The defendant demurred, claiming that the action was based on the tort or wrong done; that it was therefore controlled by the provisions of the statute that require such actions to be brought within one year after the accrual of the cause of action, and that this action was not instituted within the time allowed. To this demurrer, the plaintiff replied that the action was based on contract and was brought within the period allowed by the statute of limitations relating to contracts. The trial court sustained the defendant's demurrer, and the plaintiff appealed. At common law the death of a human being gave rise to no civil action on behalf of any person, under any circumstances. That rule, the court held, was applicable not only to actions based on torts but also to actions based on contracts. This common law rule has been changed, in Missouri, by statute, but the statute only goes so far as to authorize action when death is alleged to have resulted from a tort. The plaintiff in this case did not base her claim on the statute, but on a contract, barred by the common law rule and not within the provisions of the statute. If she had based her claim on the statute, however, her action would have been barred by the statute of limitations. The court cited with approval the case of *Duncan v. St. Luke's Hospital*, 113 App. Div. 68, 98 N. Y. S. 867, in which a husband sued the defendant hospital at common law for damages for breach of contract, based on the fact that his insane wife, while in the hospital, threw herself from a window and died as the result. In that case, the court said that the husband could not recover damages, both because it could not "fairly be held to be within the reasonable intendment of the contract that the hospital agreed to pay to the husband the value of his wife's life to him in case she did commit suicide," and also because "it is settled by innumerable cases that the right to recover for the death of a human being is a right given solely by statute." The judgment of the court below, sustaining the demurrer, was affirmed.

Herniotomy Plus Exploratory Operation

(Rhoads v. Fisher et al. (Pa.), 141 A. 719)

The appellant, proceeding under the Workmen's Compensation Act, filed a claim on account of the death of her husband, against his employer and the insurer. The referee made an award in favor of the widow. The order was approved by the compensation board and affirmed by the court of common pleas. The insurance carrier appealed to the supreme court of Pennsylvania. The deceased, at the time of the accident, was engaged in lowering a heavy steel tank into an excavation. The rope held by him became knotted, causing a violent jerk and a strain to his body. He immediately complained of severe pain in his abdomen and soon thereafter went to his home. Three days later the attending physician diagnosed a "ventral hernia." An operation was performed, and twenty-four hours later Rhoads died suddenly. It was not denied that this hernia existed or that it was the direct result of the strain sustained by the deceased. The defendants made no claim that the operation was unnecessary. They contended, however, that the accident was not the immediate cause of death, but that the surgeon in performing the operation unnecessarily extended it to a "major operation," to remedy preexisting disease conditions in the abdominal cavity. An operation, beyond what was necessary for the immediate relief of the consequences of the accident, was made, it was claimed by the defendants, in pursuance of an oral arrangement between the injured man and the surgeon, to correct intestinal troubles due to an operation for appendicitis performed several years before. In the course of the operation, old and inflamed adhesions were corrected. The gallbladder, found to be diseased, was removed. On behalf of the defendants, it was claimed that the condition of the adhesions and the infection of the gallbladder were not aggravated or affected by the accident; that the death of Rhoads resulted from "mesentery thrombosis or blood clot," and that it occurred from natural causes and consequently without liability for compensation. The legislature, said the supreme court, has confided to the compensation board and referees the exclusive function of determining what facts are established. Investigation by the court is accordingly limited to questions of law, raised by the record. The basic facts in the present case, as found by the referee, are, said the court, clear and well established. The accident happened in the course of the decedent's employment; the ventral hernia was a direct result of that accident; and the attending physician considered an immediate operation necessary. The operation did not admit of delay. If, in the course of preparations for the operation, the operating surgeon and the patient agreed that it was advisable to make the operation so complete as to include an examination in the abdominal cavity beyond the location of the ventral hernia, to discover whether certain preexisting disease conditions were affected and aggravated by the injury, in order that such conditions might be remedied, if possible; and if the death of the injured man came shortly after the operation, the court cannot hold that this surgical service, unquestionably necessary under the circumstances, can possibly dissociate the death of Rhoads from the injury sustained while lowering the tank. The evidence discloses that death was the final sequence of the accident. The judgment of the court below was affirmed.

Connecting Injury with Accident

(Catto v. Liberty Granite Co. et al. (Vt.), 141 A. 684)

The appellant, Catto, claimed compensation for permanent injury to his left eye, accidentally received in the course of his employment, June 16, 1926. Shortly after the alleged injury the eye became bloodshot and painful, so much so that the plaintiff quit work. The next morning he consulted a physician, who said he had "pink eye" and prescribed for it. A few days later, the appellant found that he had lost vision in the injured eye. In the course of a hearing before the commissioner of industries, December 29, arrangements were made for the examination of the eye by a specialist, and the eye was examined, December 31. The commissioner dismissed the claim and the plaintiff appealed to the county court. Judgment was rendered there in his favor, to which the defendants excepted and appealed to the supreme court of Vermont. The expert who examined the appellant's eyes on December 31 testified that he found an opacity or cloudiness of both lens and cornea of the left eye, causing a 35 per cent loss of vision therein. To this evidence, the defendants, the Liberty Granite Company et al., objected, on the ground that it should have been preceded by evidence showing that the condition of the eye was attributable to the accident. The evidence was therefore received with the understanding that evidence connecting the injury with the accident would be furnished, or the defendants' exception to the admission of the evidence would be allowed. If the injury reported by the expert was by evidence properly connected with the accident, the exception was without merit; otherwise it must be sustained, and the judgment of the court below must be reversed, as the expert's testimony bore on a vital element of the appellant's case. In the appellate court, the appellees, defendants in the court below, insisted that there was no evidence in the transcript tending to show that the loss of vision was caused by the accident. That there was but little testimony to that effect must be admitted. The most that can be gleaned from the testimony of the physicians is that a blow on the eye might cause the condition found if it was severe enough to cause inflammation. But medical testimony was not necessary to establish a connection between the injury and the accident. There was evidence that before the accident the plaintiff's eyes were normal; that this eye had never been injured before; that it had always given full service; that immediately after the accident it became inflamed and painful, and that since then the appellant had not been able to see with it as before. This testimony comes from the plaintiff himself, it is true, but that

fact goes only to its weight. There is no rule of law that requires that such facts be proved by the testimony of another person. The court therefore gave to the appellant the benefit of the rule requiring the appellate court to construe the evidence in his favor and, in view of the fact that the court was dealing with the tendency of the evidence, and not with its weight, the court held that the exceptions taken to the admissibility of the expert's evidence were unavailing and that the testimony was properly admitted in the case.

Constitutionality of New Jersey Medical Practice Act

(State Board of Medical Examiners of N. J. v. Johnson (N. J.), 141 A. 591)

The respondent, Johnson, was charged with violating the medical practice act of New Jersey. He demanded a jury trial, which was refused. Judgment was given against him, and he appealed to the supreme court of New Jersey. In support of his appeal he insisted that the medical practice act can apply only to those who actually practice medicine or surgery, and that the amendments to that act are unconstitutional because they include offenses not embodied in the original act of 1894. In the judgment of the supreme court, however, the title of the act was broad enough to include the offenses denounced under the amendments to the act. The unity of an act is to be sought in the end which the legislature aims to accomplish and not in the details provided to attain that end. The title to an act is a label, not an index. The question of the denial to a defendant of a jury trial in a case of this character was recently considered in *State Board of Medical Examiners* v. *Buettel* (N. J. Sup.) 131 A. 89, and it was held that the defendant was not so entitled. The judgment of the district court was affirmed.

Finger Prints as Evidence

(State v. Lapan (Vt.), 141 A. 686)

The respondent, Lapan, was convicted of murder in the second degree and appealed to the supreme court of Vermont. He and his brother left the premises where the murder was committed, in his brother's car. An expert chemist, Whitney, testifying for the state, said that spots found on the floor board of the car, on the side where the respondent sat, gave a weak, positive result when tested for blood. The test did not show whether it was human blood or animal blood. Thereupon the respondent moved to strike out the testimony. The motion was overruled and the respondent excepted. It appeared later that shortly before the murder the respondent's dog had cut its foot and had ridden in the car. The floor board was offered in evidence. Its admission was objected to on the ground that the blood might be that of the dog, and the offer was withdrawn. When the testimony of the witness Whitney was received, it was admissible. The admission of evidence, legitimate when received, does not become erroneous simply because afterward, in the course of the trial, it becomes immaterial.

Among the articles used by the state as exhibits was a blood-stained glass lamp. A deputy sheriff took this lamp to Boston, to the Massachusetts Bureau for Identification of Criminals. He took with it two imprints of a part of the palm of the respondent's right hand. The lamp and the imprints were produced at the trial. When the deputy sheriff was asked if they were correct imprints, objection was made on the ground that it had not appeared how they were taken. Whereupon the court remarked: "It is a generally recognized science if properly taken. We will assume they are correct." To so much of the statement as referred to its being "a generally recognized science," the respondent excepted. No ground of exception was then specified, and the only one urged on appeal was that no evidence had been given "as to the state of this so-called science." No such evidence, said the appellate court, was required. The subject is one of the things that does not have to be proved. That the system of finger print identification rests on a substantial scientific basis and that it is in general use in criminal trials are facts of which courts take judicial notice. This knowledge of the courts goes so far as to enable them to say, without proof, that the imprint of the palm side of the human hand, when fairly taken, presents reliable, individual and unchanging characteristics of the papillary ridges; and that, when those are correctly read and interpreted by one skilled in the science, they afford valuable evidence on questions of identity.

A witness for the state who had qualified as an expert finger print reader was asked on cross-examination to take a print of the cross-examiner's finger, in kerosene oil, to see what it would do to a certain characteristic on it. The question was excluded and the respondent excepted. The exclusion of this question was not error. The matter was addressed to the administrative function of the court. What the cross-examiner asked for was to make an experiment before the jury for the purpose of discrediting the witness. It was in the discretion of the trial court to admit or exclude the experiment. The supreme court held that there was no error in the proceedings in the court below and that the respondent took nothing by his exceptions.

Expert Testimony in Case of Homicide Limited

(Boles v. State (Texas), 5 S. W. (2d) 509)
(Greger v. State (Ohio), 161 N. E. 37)

In the first of these two cases the appellant was convicted of manslaughter and appealed to the court of criminal appeals of Texas. In the trial court, a physician, although he had not been present at the time of the firing of the fatal shot, was permitted to testify for the state, over objection on behalf of the defendant, that, from the location of the wounds, the deceased was either on the ground when he was shot, or the pistol with which he was shot was on the ground. This witness, said the appellate court, invaded the province of the jury, who were as well qualified to speak as the witness. The relative position of the parties at the time of the shooting could not properly be determined by the opinion of either a nonexpert or an expert witness. The objection on behalf of the defendant should have been sustained. For this and other reasons, the judgment of the trial court was reversed and the cause remanded.

In the second case, *Greger* v. *State*, the defendant, Greger, was convicted of manslaughter, and appealed to the court of appeals of Ohio, Clermont County. His indictment and conviction were the outcome of the killing, in the alleged defense of his father, of one Wood. As one of the grounds for his appeal, complaint was made of the refusal of the trial court to permit a medical witness to answer the following question:

Q. From the impression you found on the back, that you have described, I'll ask you to state what kind of an implement, in your opinion, it was caused by.

The answer to this question, said the appellate court, was properly excluded, because it calls simply for an opinion. The physician could, as he did, describe the impressions and the injuries found on the back, their character and their shape. It was then for the jury to determine the kind of an instrument used causing the injury. Or, in other words, the jury might infer from the description of the injury, and the impression found on the back, that it was caused by an ax, which would corroborate the defendant's claim that the decedent struck the older Gregor on the back with an ax. Judgment reversed, and cause remanded.

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Mobile, April 16-19. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Association for the Study of Goiter, Dayton, Ohio, March 25-27. Dr. K. W. Kinard, Bryant Building, Kansas City, Mo., Secretary.

American Association for Thoracic Surgery, St. Louis, April 25-27. Dr. Ethan Flagg Butler, Robert Packer Hospital, Sayre, Pa., Secretary.

American Association of Anatomists, Rochester, New York, March 28-30. Dr. Lewis H. Weed, Johns Hopkins Medical School, Baltimore, Sec'y.

American Association of Pathologists and Bacteriologists, Chicago, March 28-29. Dr. H. T. Karsner, 2109 Adelbert Road, Cleveland, Secretary.

American College of Physicians, Boston, April 8-12. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Secretary.

Louisiana State Medical Society, New Orleans, April 9-11. Dr. P. T. Talbot, 1551 Canal Street, New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 23-25. Dr. John T. King, Jr., 1211 Cathedral Street, Baltimore, Secretary.

North Carolina, Medical Society of the State of, Greensboro, April 22-24. Dr. L. B. McBrayer, Southern Pines, Secretary.

Tennessee State Medical Association, Jackson, April 9-11. Dr. H. H. Shoulders, Lambuth Building, Nashville, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Diseases of Children, Chicago

37: 1-232 (Jan.) 1929

*Relation Between Malnutrition and Nervousness: Part I. M. Seham and G. Seham, Minneapolis.—p. 1.
*Asthma in Children: VIII. Comparative Study of Direct and Indirect (Local Passive Transfer) Methods of Skin Testing With Scratch and Intradermal Technics. M. M. Peshkin and A. H. Fineman, New York. —p. 39.
Comparison of Calculated and Determined Osmolar Concentration of Normal Serum: Base-Binding Power of Proteins and Determination of Total Base. D. C. Darrow and A. F. Hartmann, St. Louis.—p. 51.
*Ossification and Growth of Children From One to Eight Years of Age. R. O. Sawtell, New York.—p. 61.
Juvenile Acrodynia: Twelve Cases. C. W. Wyckoff, Cleveland.—p. 88.
*Skin Reactions of Patients With Rheumatic Fever to Toxic Filtrates of Streptococcus. H. F. Swift, M. G. Wilson and E. W. Todd, New York.—p. 98.
Traumatic Necrosis of Subcutaneous Fat of New-Born Infant. L. De Vel, San Francisco,—p. 112.
*Bilateral Gangrene of Feet Following Tonsillectomy. I. S. Wright, New York.—p. 121.
*Purpuric Exanthems in Infectious Diseases. H. Baar, Vienna, Austria, and B. M. Gasul, Chicago.—p. 126.
Adenocarcinomatosis in Girl Aged Six Years. G. M. Lyon and J. S. Klumpp, Huntington, W. Va., and J. W. Ferguson, Kenova, W. Va. —p. 134.
*Anemia of New-Born Infant. E. W. Ehrmann, Chicago.—p. 138.
Epiphyses: Growth, Development, Injuries and Diseases. P. Lewin, Chicago.—p. 141.
James Primrose, 1580 (?)-1659. J. Ruhrah, Baltimore.—p. 179.

Relation Between Malnutrition and Nervousness.—The effect of malnutrition on activity was studied by the Sehams in ten male rats, ten additional rats being kept for control. A clinical study of malnutrition in children with especial emphasis on symptoms of nervousness and fatigue and on health habits was carried out. A procedure of treatment of malnourished children is suggested. The experimental work indicates that: (1) Hunger is the cause of activity; (2) a positive relation exists between activity and loss in weight; (3) in malnutrition an adequate diet reduces the activity with a simultaneous increase in weight, and (4) inanition produces irritability, restlessness and blinking in rats. The clinical study of malnourished children suggests that the symptoms of nervousness and fatigue are more numerous in children whose weight-height index is more than 10 per cent below the standard than in children whose weight-height index is less than 10 per cent below the normal. The forced feeding and rest cure for malnourished children reduces and improves nervous symptoms, increases functional capacity and hastens the gain in weight.

Asthma in Children.—The application of local passive transfer of human hypersensitiveness as a means of testing (indirect method) has been compared by Peshkin and Fineman with the accepted technics (scratch and intradermal) of skin testing (direct method). Eighteen children with asthma ranging in age from 7 months to 14 years were each tested by the direct and indirect methods with thirty-three protein extracts, both the scratch and the intradermal technics being used. Dry powdered extracts were employed for the scratch tests and routine fluidextracts (Coca) for the intradermal tests. All of these children were under observation for two years. Many comparative tests between the scratch and intradermal technics with both the direct and the indirect methods showed that the indirect method of testing (scratch and intradermal technics) employed as a routine measure to determine etiologic sensitizations in children with allergy is unsatisfactory. Its employment as a substitute for the direct method of testing, even in specially selected cases, is regarded as being unpractical.

Ossification and Growth of Children.—The progress and variation of ossification and growth in the hands of young children, the interrelation of these processes and their significance in respect to other physiologic traits are fully discussed by Sawtell. The total number of children represented in this study is 112. The author concludes that ossification is closely related throughout the hands of children from 1 to 8 years and that there exists a definite interrelationship between ossification and gross bodily size, but that this correlation is less than that between the actual growth of bone and the child's stature and weight.

Skin Reactions of Patients with Rheumatic Fever to Toxic Filtrates of Streptococcus.—The clinical material studied by Swift et al. consisted of children with rheumatic heart disease who had been under observation for several years. As a standard toxic filtrate, they used a ten day filtrate in Douglas tryptic broth of strain RF1B. The broth filtrates were diluted to the desired strength with physiologic solution of sodium chloride containing 0.5 per cent phenol. Patients with rheumatic fever gave a higher proportion of positive skin reactions with filtrates of both indifferent and green streptococci than did nonrheumatic controls. Patients with active rheumatic fever gave a higher proportion of skin reactions with these filtrates than did those with inactive or "cured" rheumatic fever. When the reactions with unheated filtrate were compared with those with filtrate boiled one hour, it was found that the boiled filtrate gave stronger reactions in most patients with active rheumatic fever and weaker reactions in most patients with inactive or "cured" rheumatic fever. A close correspondence was not found in the capacity of patients to give skin reactions with Dick "toxin" and filtrates of nonhemolytic streptococci. Positive reactions in patients with rheumatic fever seem to depend more on the state of hypersensitiveness to certain products of streptococci than on the specificity of any one type of streptococcus.

Bilateral Gangrene of Feet Following Tonsillectomy.—Three features, each a most unusual sequel of tonsillectomy, are outstanding in the case reported by Wright: (*a*) a markedly septic course with development of a heart murmur; (*b*) bloody stools, and (*c*) gangrenous areas on both feet, involving the toes, followed by clinical recovery except for a residual systolic cardiac murmur and the loss of one toe.

Purpuric Exanthems in Infectious Diseases.—Three cases are reported by Baar and Gasul. The purpura in the first case appeared during the course of scarlet fever. The purpura in the second case was seen in a patient who had an infection of unknown etiology, this case being of interest also on account of the unusual localization of the purpuric exanthem. The third case was a hemorrhagic diathesis in septic diphtheria which showed the clinical, hematologic and pathologic symptoms of a true Werlhof's disease.

Anemia of New-Born Infant.—A sixth case of anemia in a new-born infant is reported by Ehrmann. An examination of the blood made on the fifth day showed the following: hemoglobin content (Dare) 28 per cent; red blood cells, 1,228,000; hemoglobin index, 1.2, and white blood cells, 20,550. The differential count on 200 cells showed: neutrophilic polymorphonuclear leukocytes, 36 per cent; large lymphocytes, 26 per cent; small lymphocytes, 30 per cent; monocytes, 5 per cent; basophils, 0; eosinophils, 1 per cent, and myelocytes, 2 per cent. There were seven nucleated red cells for each 200 white cells; these were normoblasts. The coagulation time was four minutes; the bleeding time was three minutes and thirty-five seconds. On the seventh day, the hemoglobin content was 20 per cent; the coagulation time, six minutes; the bleeding time, five minutes and fifty-five seconds, and the blood platelets, 334,000. A fragility test done with saline solutions, varying by 0.02 per cent from 0.0 to 0.2 per cent, showed hemolysis beginning at 0.6 per cent and complete at 0.44 per cent, as compared to the normal, which begins at 0.42 per cent and ends at 0.32 per cent. Regenerative changes, such as nucleated red cells, polychromatophilia and high white cell count, accompany degenerative changes, such as anisocytosis and moderate achromia. Poikilocytosis was not marked in this case. The increased fragility of the red cells suggests an inherent weakness of the cells themselves, a condition not seen in pernicious anemia or secondary anemia.

American J. Ophthalmology, Chicago

12: 1-86 (Jan.) 1929

Diagnosis and Treatment of Dacryocystitis. L. Daily and R. K. Daily, Houston, Texas.—p. 1.
Vaccine Therapy in Diseases of Eye. C. Berens and R. R. Losey, New York.—p. 11.
Use of Lens Protein Tests Before Cataract Operations. R. H. Courtney, Richmond, Va.—p. 20.
Nevus of Bulbar Conjunctiva: Case. F. H. Rodin and E. M. Hall, San Francisco.—p. 24.
Unusual Cyst of Forehead and Orbit. H. S. Gradle, Chicago.—p. 28.
Sensitive Test for Equality of Accommodation. J. I. Pascal, New York. —p. 29.
Cataract Wound Infected with Facultative Anaerobic Streptococcus. H. M. Langdon, Philadelphia.—p. 37.
Epiphora Due to Relaxation. J. H. McKellar, Pasadena, Calif.—p. 34.

American J. Psychiatry, Baltimore

8: 425-598 (Nov.) 1928

Biometric Studies in Psychiatry: III. Chances of Death. W. Freeman, Washington, D. C.—p. 425.
Educational Possibilities of State Psychopathic Hospital. F. G. Ebaugh, Denver.—p. 443.
Some Central Nervous System Factors in Make-Up of Consciousness. L. Casamajor, New York.—p. 457.
American Psychopathologic Association. R. McC. Chapman, Towson, Md.—p. 467.
Acute Psychoses as Reaction Types. C. R. Ball, St. Paul.—p. 479.
Psychotic Reaction in Psychopath. G. E. Partridge, Baltimore.—p. 493.
Observations on Sex Problem in America. E. Sapir, Chicago.—p. 519.
Analysis of Personality: Survey of Psychologists' Experiments. I. Hendrick, Baltimore.—p. 535.
Psychasthenic Reaction. N. N. Brush, Santa Barbara, Calif.—p. 565.

American J. Public Health, New York

19: 1-140 (Jan.) 1929

Weather and Common Cold. T. J. Duffield, New York.—p. 1.
Possible Relationship of Mutual Benefit Associations to Health of Employees. H. A. Seymour, Chicago.—p. 16.
Mobilizing Mutual Benefit Associations for Health. M. W. Alexander, New York.—p. 21.
Bacteriophage From Public Health Standpoint. N. W. Larkum, Lansing, Mich.—p. 31.
Vital Statistics and Measurement of Health Progress, Fargo, N. D. R. E. Chaddock, E. A. Winslow and C. A. Boudo, New York.—p. 37.
What We Do Not Know About Accidents. R. L. Forney, Chicago.—p. 46.
Symposium on Schoolroom Ventilation: Reports on Schoolroom Ventilation Studies, New Haven, Conn. L. Greenburg, New Haven, Conn. —p. 55.
Id.: Cleveland, Ohio. L. W. Childs, Cleveland.—p. 59.
Id.: Syracuse, N. Y. T. J. Duffield, New York.—p. 64.
Chlorination as Factor of Safety in Shellfish Production. W. F. Wells, West Sayville, N. Y.—p. 72.

Archives of Ophthalmology, Chicago

1: 1-158 (Jan.) 1929

*Meningiomas Arising from Tuberculum Sellae: Syndrome of Primary Optic Atrophy and Bitemporal Field Defects Combined with Normal Sella Turcica in Middle-Aged Person. H. Cushing and L. Eisenhardt, Boston. (To be Cont'd.)—p. 1.
Diseases of Eye in Old Age. W. H. Wilmer, Baltimore.—p. 42.
Histologic Observations in Case of Localized Tuberculous Chorioretinitis. F. H. Verhoeff, Boston.—p. 63.
*Iridectomy in Glaucoma: Study of Glaucomatous Process. A. Von Graefe, Berlin, Germany.—p. 71.
*Ulceration of Sclera. N. R. Donnell, St. Louis.—p. 87.
Entoptic Visibility of Capillary Circulation in Retina. F. H. Adler, Philadelphia.—p. 91.

Meningiomas Arising from Tuberculum Sellae.—This paper by Cushing and Eisenhardt deals with a well known type of meningeal tumor whose presence, by the accident of its situation, is betrayed by a characteristic symptomatology long before it attains a large size. Eleven cases are reported, and the syndrome of primary optic atrophy and bitemporal field defects combined with a normal sella turcica in a middle-aged person is discussed. The article is to be continued.

Iridectomy in Glaucoma.—Von Graefe says that the theory of the curative effect of iridectomy is far less certain than the empiric fact. He adopted this treatment with the idea of diminishing the intra-ocular pressure. Pursuit of this point of view seems to have obtained a result. At the same time, this is not a proof of the correctness of the explanation. It is possible that the effect of iridectomy is extremely complex. A decrease in the secreting surface of the iris might account for a reduction in the quantity of the fluid, but as yet information is lacking as to how much less aqueous is secreted in these cases and whether such a deficiency could explain such a striking change in intra-ocular pressure. The cooperative effect of the muscles of the iris with the tensor choroidea, which was pointed out in a recent theory of accommodation, might explain how the excision of a piece of iris would produce a diminution of intra-ocular pressure by a relaxation of this muscle. The persistence of accommodation after the coloboma has been made, however, does not support this view. Perhaps interference with the iris acts primarily on the choroidal circulation, the therapeutic pressure-reducing effect being only secondary. The presence of the hemorrhages proves that iridectomy in glaucoma is of considerable influence on the ocular circulation. The treatment, undoubtedly, will be still more efficacious when ophthalmologists are able to analyze more correctly all the foregoing points. It is conceivable that in selected cases the ordinary excision is not sufficient, but that removal of larger pieces of iris will make the operation more successful. The pieces of iris should be larger in proportion as the condition is more severe.

Ulceration of Sclera.—Donnell reviews the literature and reports two personal cases. He says that it would seem that scleral ulcer is the result of deep seated infections such as tuberculosis and syphilis and not focal infections of teeth, tonsils and sinuses. This statement is borne out by the two cases reported.

Archives of Otolaryngology, Chicago

9: 1-122 (Jan.) 1929

Clinical Significance of Spontaneous Nystagmus. H. Brunner, Vienna, Austria.—p. 1.
Malignant Tumors of Nasopharynx: Four Cases. F. K. Hansel, St. Louis.—p. 12.
Comparative Study of Chronic Sinusitis With End-Results Following Intranasal Operations. R. G. Reaves, Knoxville, Tenn.—p. 23.
Subarachnoid Spaces in Relation to Otitic Meningitis. E. LeR. Wood, Newark, N. J.—p. 40.
Right Hemiplegia, Aphasia and Aphonia Following Gunshot Wound of Neck: Case. J. L. Garvey, Ann Arbor, Mich.—p. 57.
Irrigation and Suction Cannulas, New and Modified, for Frontal, Maxillary and Sphenoidal Sinuses. J. W. Miller, New York.—p. 59.
Frontal Sinus Rasp. H. A. Schatz, Philadelphia.—p. 60.
Deaf-Mutism and Education of Deaf. R. Sonnenschein, Chicago.—p. 61.

Archives of Pathology, Chicago

7: 1-196 (Jan.) 1929

Pathogenesis of Intestinal Amebiasis in Kittens. C. W. Rees, Baltimore. —p. 1.
Metaplasia of Basal Cells in Ducts of Pancreas: Its Consequences. J. Baló, Szeged, Hungary, and H. C. Ballon, Montreal.—p. 27.
*Multiple Hemangiomas of Skin and Internal Organs. R. H. Jaffé, Chicago.—p. 44.
*Diffuse, Obliterating Endarteritis of Unknown Etiology: Instance with Obliteration of Inferior Vena Cava. D. Perla and B. Seligman, New York.—p. 55.
*Origin of Fibroblasts Within Experimental Hematoma. G. M. Higgins and B. M. Palmer, Rochester, Minn.—p. 63.
Splenic Atrophy With Calcium and Iron Incrustations (Nodular Splenic Atrophy): Case. G. A. Bennett, Boston.—p. 71.
Observations on Reticulo-Endothelial Cells in Septic Jaundice. I. Sherman, New York.—p. 78.
Histochemical Evidence Concerning Site of Formation of Bile Pigment. P. Corr, Madison, Wis.—p. 84.
Migration of Leukocytes in Blood Clots: I. Influence of Phosphates of Sodium and Potassium. H. T. Karsner, Cleveland and A. T. Merrill, Washington, D. C.—p. 101.
Practical Method of Labeling Anatomic Specimens. R. B. Wright, Baltimore.—p. 112.
Stability of Glycerinated Antisheep Hemolysin. R. A. Kilduffe and B. Shifman, Atlantic City, N. J.—p. 113.
Cellular Inclusions and Etiology of Virus Diseases. E. W. Goodpasture, Nashville, Tenn.—p. 114.

Multiple Hemangiomas of Skin and Internal Organs in Infant.—A case of multiple hemangiomas of the skin and the internal organs in an infant is described by Jaffé. There was a marked difference in the size of these tumors, which in some organs showed signs of expansive growth. In spite of these observations, all the tumors were considered to be simultaneous and independent formations. The existence of a so-called benign, metastasizing hemangioma is said to be doubtful.

Diffuse, Obliterating Endarteritis of Unknown Etiology.—An instance of diffuse, obliterating endarteritis involving the medium sized and smaller arteries of the heart, brain, thyroid, lung, kidneys and extremities, together with an organized occluding thrombosis of the inferior vena cava in a woman, aged 47, is reported by Perla and Seligman. The etiology is unknown. A single instance was found in the literature.

Origin of Fibroblasts Within Experimental Hematoma.—On the basis of their observations in a series of experimentally produced hematomas, Higgins and Palmer conclude that: (1) the blood monocytes and the lymphocytes may differentiate into other histiocytic elements; (2) the monocytes may differentiate into clasmatocytes or directly into fibroblasts; (3) the clasmatocytes may further differentiate into fibroblasts, and (4) the lymphocytes may also differentiate into fibroblasts.

Archives of Surgery, Chicago

18: 180-606 (Jan.) 1929. Part II

Significance of Changed Intrathoracic Pressures. E. A. Graham, St. Louis.—p. 181.
*Lobar Pneumonia: Considered as Pneumococcic Lobar Atelectasis of Lung: Bronchoscopic Investigation. P. N. Coryllos and G. L. Birnbaum, New York.—p. 190.
*Experimental Atelectasis. W. E. Lee, G. Tucker, I. S. Ravdin and E. Pendergrass, Philadelphia.—p. 242.
*Massive Atelectasis Complicating Paravertebral Thoracoplasty for Pulmonary Tuberculosis. F. B. Berry, New York.—p. 257.
*Thoracic Tumors. G. J. Heuer, Cincinnati.—p. 271.
Id.: Roentgen Study. J. J. Singer, St. Louis.—p. 283.
Cyst of Lung: Recovery Following Operation for Permanent Drainage. H. Lilienthal, New York.—p. 292.
Roentgenologic Diagnosis of Thoracic Dermoids. L. T. Le Wald, New York.—p. 300.
Primary Cancer of Lung: Case. W. Meyer, New York.—p. 307.
*Carcinoma of Lung. J. D. Kernan and A. J. Cracovaner, New York.—p. 315.
Hodgkin's Disease of Neck and Mediastinum: Bilateral Cervical Operations: Mediastinotomy. W. Lerche, St. Paul.—p. 329.
Relationship of Heart and Lungs in Disease. P. D. White, Boston.—p. 339.
Acquired Dextrocardia in Cases of Pulmonary Tuberculosis. C. A. Hedblom, Chicago.—p. 349.
Experimental Surgical Relief of Experimentally Produced Pericardial Adhesions. A. Ochsner and G. R. Herrmann, New Orleans.—p. 365.
Experimental Pericarditis. A. M. Shipley and C. F. Horine, Baltimore.—p. 386.
*Present Status of Surgical Procedures in Chronic Valvular Disease of Heart. E. C. Cutler and C. S. Beck, Cleveland.—p. 403.
Surgery of Pericardium and Heart. A. L. Lockwood, Toronto.—p. 417.
*Removal of Bullet from Pericardium Under Local Anesthetic. T. C. Davison, Atlanta, Ga.—p. 475.
Pulmonary Abscess and Pulmonary Gangrene. B. S. Kline and S. S. Berger, Cleveland.—p. 481.
Surgical Principles Underlying One-Stage Lobectomy. H. Brunn, San Francisco.—p. 490.
Experimental Production of Abscess of Lung. A. V. S. Lambert and C. Weeks, New York.—p. 516.
*Recurring Hemorrhage in Chronic Suppurative Conditions of Lung: Treatment by Ligation of Pulmonary Artery. H. L. Beye, Iowa City.—p. 520.
Abscess of Lung Following Fracture of Ribs. C. Georg, Jr., Ann Arbor, Mich.—p. 526.
Unilateral Pneumothorax: Behavior of Mediastinum. H. Lilienthal, New York, and J. B. Amberson, Jr., Loomis, N. Y.—p. 533.
Effects of Large Closed Bilateral Pneumothorax on Thoracic Lymph Flow. F. S. Dolley, Los Angeles, and E. R. Wiese, Ingomar, Pa.—p. 542.
"Strain" on Collateral Lung in Collapse Therapy. E. D. Churchill, Boston.—p. 553.
*Phrenicotomy in Treatment of Diaphragmatic Hernia and of Tumors of Wall of Chest. S. W. Harrington, Rochester, Minn.—p. 561.
Defensive and Metabolic Apparatus of Lungs. B. M. Fried, Boston.—p. 599.

Lobar Pneumonia Considered as Lobar Atelectasis of Lung.—According to the conception of pneumonia presented by Coryllos and Birnbaum, based on experimental and clinical data, lobar pneumonia is considered as an "infectious (generally pneumococcic) lobar atelectasis of the lung." Postoperative massive atelectasis, postoperative pneumonia and "lobar pneumonia" are shown to have a similar pathogenesis and evolution, and similar clinical and roentgen signs. Bronchopneumonia is considered as an infectious patchy atelectasis. Bronchoscopic treatment, which has given such encouraging results in massive atelectasis, has been suggested and applied to cases of lobar pneumonia in man. The number of these cases is as yet too small to allow definite conclusions to be drawn from them.

Experimental Atelectasis.—Lee et al. show that it is impossible to produce bronchial obstruction in dogs unless the cough reflex is abolished.

Massive Atelectasis Following Paravertebral Thoracoplasty.—Four cases of massive atelectasis following paravertebral thoracoplasty for pulmonary tuberculosis are reported by Berry. The mortality rate was 50 per cent. In addition, in a series of 130 such operations on ninety-three patients, postoperative pneumonia has occurred in five. The percentage incidence of pneumonia for the entire number of operations is 3.8, and for total early complication of the lungs, 6.9. Two of the cases of pneumonia and one of massive atelectasis occurred following the single-stage complete thoracoplasty. The others were subsequent to first stage operations in which the upper ribs were removed.

Thoracic Tumor Registry.—Heuer suggests that because of the confusion which exists regarding the origin, pathologic characteristics and terminology of many groups of intrathoracic tumors, and because no one man sees a sufficient number of cases, there should be for a time a thoracic tumor registry. It must also be evident that further aids are needed in the differential diagnosis of intrathoracic tumors. Surgical treatment in cases of benign tumors has been eminently satisfactory; it could be made much more satisfactory if benign lesions were treated earlier. The literature is full of reports of lost opportunities; of tumors found at autopsy which could easily have been removed. A change of sentiment among physicians and patients regarding the advisability of thoracic exploration is necessary. It can be shown that thoracic exploration at present is a procedure attended by a low mortality. Finally, accurate follow-up studies need to be made if the results of surgery are to be known.

Carcinoma of Lung with Complete Atelectasis.—A case of complete atelectasis of the left lung due to blocking by a carcinoma of the left main bronchus is reported by Kernan and Cracovaner. The tumor was seemingly entirely removed by the use of radium seeds and the application of surgical diathermy through the bronchoscope. The patient is symptomically entirely relieved to date. The case illustrates the importance of bronchoscopy in the diagnosis and treatment of patients who have tumors of the lung. It also illustrates the importance of bronchoscopy in investigating the etiology of atelectasis of the lung.

Surgical Procedure in Chronic Valvular Disease of Heart.—Cutler and Beck report on one case of pulmonic stenosis, one case of aortic stenosis and ten cases of mitral stenosis. Of the ten patients with mitral stenosis who were operated on, only one is living, giving a mortality of 90 per cent. Eight of the ten patients died so soon after operation that the changes brought about in the mechanics of the circulation could not be adequately studied. One patient lived four and a half years after the operation. It is difficult to say definitely whether in this case the enlargement effected in the mitral valve by the operation was followed by an improvement in the patient's condition. Three kinds of procedures were utilized in the attempts to enlarge the stenotic orifice. These methods were finger dilation, incision of the stenotic valve and excision of a segment of the stenotic valve. The only two patients of the series living are those in whom dilation was done. Incision of the stenotic valve was carried out in four cases. The authors devised an instrument that could excise a segment from the valve and remove it from the blood stream. This instrument was used in five cases. In each of the four patients operated on, some difficulty was experienced in orientation within the heart.

Removal of Bullet from Pericardium.—In Davison's case the thorax was penetrated by two bullets, either of which might have caused death. The first perforated the lung near the hilum and evidently injured one of the larger blood vessels, resulting in a massive hemothorax, pneumonia and, later, in empyema. The other injured the pericardium, resulting in pericarditis, and finally, in a localized abscess of the pericardium. The patient suffered from primary shock, internal hemorrhage and infection, but finally recovered. Under local anesthesia an incision was made over the third rib at its junction with the sternum, and a portion of the third and fourth costal cartilages was removed. The pericardium was exposed and incised and the edges were retracted. The cavity and the heart were inspected and palpated carefully and thoroughly. The bullet could not be located either in the pericardial sac or in the heart muscle. Each time the heart was palpated it became rapid and irregular, but it would quiet down when the examining finger was removed. When the palpating finger was turned from the heart, a thickened and bulging area was found to the left of the incision in the sac. This mass was aspirated and found to contain pus. The pericardium was

closed with number 0 chromic catgut sutures, and then the abscess in the pericardial wall was opened, 4 cc. of pus was evacuated and a number 25 caliber brass-jacketed bullet was removed. A small rubber tissue drain was placed in the cavity and the skin closed. The patient's general condition improved rapidly but he had also an empyema. He was finally dismissed from the hospital on the ninety-fourth day, entirely well.

Treatment of Recurring Pulmonary Hemorrhage by Ligation of Pulmonary Artery.—Beye reports two cases in which ligation of the branch of the pulmonary artery to the lower lobe of the right lung was performed successfully in an attempt to control the symptom of hemoptysis. In each case partial thoracoplasty had been performed, together with phrenic neurectomy, and in each the symptom of pulmonary hemorrhage persisted to such a degree, in spite of surgical collapse, that a fatal termination seemed inevitable.

Phrenicotomy in Treatment of Diaphragmatic Hernia.—Harrington asserts that diaphragmatic paralysis by phrenicotomy is of value as a palliative procedure in certain cases of diaphragmatic hernia in which radical surgical procedures are contraindicated. Preliminary phrenic emphraxis is an aid in the selection of these cases. Phrenicotomy as preliminary to radical surgical procedure is of value in closing large hernial openings in selected cases. In the most extreme cases, preliminary posterior thoracoplasty may be necessary. Phrenic emphraxis is of great aid in the technical closure of openings in the diaphragm in operations by the abdominal approach on very obese patients. Large defects in the wall of the chest and diaphragm may be repaired and a closed thorax maintained by utilization of the paralyzed diaphragmatic muscle following phrenicotomy.

Arkansas Med. Soc. J., Little Rock

25: 149-163 (Jan.) 1929

Surgery of Upper Right Quadrant of Abdomen. J. S. Stell, Hot Springs National Park.—p. 149.
Puerperal Sepsis. G. E. Cannon, Hope.—p. 152.

Canadian Med. Assoc. J., Montreal

20: 1-110 (Jan.) 1929

Principles Underlying Scheme of Antituberculosis Measures in Any Country. R. Philip, Edinburgh, Scotland.—p. 1.
Relationship of Gastro-Intestinal and Respiratory Disorders to Focal Infection. G. R. Pirie, Toronto.—p. 4.
Clinical Aspects of Hyperthyroidism. A. H. Gordon, Montreal.—p. 7.
Responsibilities and Opportunities of Private Practitioner in Preventive Medicine. A. G. Fleming, Montreal.—p. 11.
Pernicious Vomiting of Pregnancy. W. J. Stevens, Ottawa.—p. 13.
Pyloric Spasm. E. S. Moorhead, Winnipeg.—p. 17.
Treatment of Head Injuries. H. H. Hepburn, Edmonton.—p. 20.
Circumscribed Serous Meningitis: Case. A. Gibson, England, and A. T. Mathers, Winnipeg.—p. 23.
Kahn Test as Compared with Standard Wassermann Reaction. F. Green, Montreal.—p. 26.
"Spinocaine" in Spinal Anesthesia. N. H. Gosse, Halifax, N. S.—p. 29.
Influence of Head and Pelvic Harmony on Duration of Labor. F. N. Walker, Toronto.—p. 31.
Anterior Dislocation of Elbow. F. J. Tees and L. H. McKim, Montreal.—p. 36.
Twin Pregnancy With Intra-Uterine and Extra-Uterine Ovum. L. Gerin-Lajoie, Montreal.—p. 38.
Pyemia Resulting from Infected Finger: Fatal Case. L. H. Werden, St. Catharines, Ont.—p. 40.
Minor Hand Injuries Resulting in Death. G. G. Corbet, St. John, N. B.—p. 40.
Filtrable Form of Tubercle Bacillus. H. E. MacDermot, Montreal.—p. 42.
Recent Trip of Canadian Tuberculosis Association Representatives. D. A. Stewart, Ninette, Man.—p. 56.
Regarding Infectious Disease and Epidemization. A. D. Blackader, Montreal.—p. 59.
Intern Problem and Loss of Medical Graduates. G. H. Agnew, Toronto.—p. 61.

Florida M. Assoc. J., Jacksonville

15: 323-366 (Jan.) 1929

"Psychoneuroses." R. M. Harris, Miami.—p. 335.
Significance of Hematuria to General Practitioner. L. Orr, Orlando.—p. 339.
Prostatic Hypertrophy. J. E. Hall, Miami.—p. 342.
Hemotherapy: New Method in Treatment of Vomiting of Pregnancy. J. L. Carlisle, West Palm Beach.—p. 344.
Otomycosis. N. W. Gable, St. Petersburg.—p. 347.
Syphilis Observed at Florida State Hospital: 600 Cases. J. C. Inman, Jr., Chattahoochee.—p. 349.
Record of Examination of 255 Preschool Children of Tampa. W. H. McCaslan, Tampa.—p. 350.

Illinois Medical Journal, Oak Park

55: 1-76 (Jan.) 1929

Intravenous Lead in Treatment of Cancer. R. T. Pettit, Ottawa.—p. 9.
Chronic Glaucoma. W. H. Wilder, Chicago.—p. 15.
Common Drugs Used in Treatment of Skin Diseases and Their Action. J. W. Skebelsky, Chicago.—p. 21.
How Women's Auxiliary Can Best Help Organized Medicine. C. J. Whalen, Chicago.—p. 25.
*Agranulocytic Angina. I. M. Trace, Chicago.—p. 36.
Diphtheria Immunization Campaign. E. B. Ball, Springfield.—p. 38.
Albuminuria in Children. J. K. Calvin, Chicago.—p. 45.
Esophageal Obstructions: Seven Cases. F. M. Drennan and F. C. Val Dez, Chicago.—p. 48.
Rectal Drainage of Pelvic Abscesses of Appendiceal Origin: Case. A. P. Heineck, Chicago.—p. 53.
Value of White and Differential Count in Abdominal Surgery: Plea for Use of Differential Counts. H. P. Miller, Rock Island.—p. 59.
Certified Milk. M. G. Slaughter, Chicago.—p. 64.
Duodenal Diverticula With Ulcer. M. Thorek, Chicago.—p. 64.
Treatment of Gangrene Occurring in Diabetic Patients. R. W. Keeton, Chicago.—p. 69.

Fatal Cases of Agranulocytic Angina.—Three fatal cases of agranulocytic angina are reported by Trace; two in females and one in a male. All three cases showed a gangrenoulceration angina with a marked neutrophilic leukopenia. All treatment, including repeated blood transfusion, was futile. All three cases were diagnosed and treated as diphtheria, Vincent's angina and streptococcus sore throat, and their true nature was not recognized till the blood was examined.

Journal of Comparative Psychology, Baltimore

8: 361-462 (Dec.) 1928

Effect of Suggestion on Perception of Binaural Shift. W. L. Valentine and C. Gorsuch, Delaware, Ohio.—p. 361.
Visual Perception in White Rat. W. L. Valentine, Delaware, Ohio.—p. 369.
Effect of Rotating Maze on Performance of Hooded Rat. J. A. Gengerelli, Philadelphia.—p. 377.
Differentiation of Emotional Responses in Infants: III. Proposed Theory of Development. M. Sherman, Washington, D. C.—p. 385.
Temporal Discrimination in Monkey. H. Woodrow, Urbana, Ill.—p. 395.
Right or Left Going Position Habit With Rats. J. G. Yoshioka, Berkeley, Calif.—p. 429.
Causal Factors in Animal Learning. J. A. Gengerelli, Philadelphia.—p. 435.

Journal of Infectious Diseases, Chicago

44: 1-72 (Jan.) 1929

Broad Tapeworm in America: Suggestions for Control. T. Vergeer, Ann Arbor, Mich.—p. 1.
Differential Medium for Salmonella Pullorum, Salmonella Gallinarum, Pasteurella Avicida and Escherichia Coli. W. L. Mallmann and D. Snyder, East Lansing, Mich.—p. 13.
Salmonella Pullorum in Intestinal Contents of Baby Chicks. W. L. Mallmann, East Lansing, Mich.—p. 16.
Brilliant Green Enrichment Methods in Examination of Feces for Organisms of Enteric Group. R. Gilbert and M. Coleman, Albany, N. Y.—p. 21.
Effect of Oxygen on Viability of Young Cultures of Clostridium Botulinum. G. M. Dack and E. H. Williston, Chicago.—p. 27.
*Upper Respiratory and Middle Ear Infections: Bacteriologic and Experimental Study. J. H. Fisher, London, Ont.—p. 33.
Absence of Heterophilic Antigen in Certain Foods. I. Davidsohn, Philadelphia.—p. 44.
Yeastlike Organisms of Human Origin. M. J. McKinney, Chicago.—p. 47.
Transmission of Bartonella Infection in Albino Rats. P. R. Cannon and P. H. McClelland, Chicago.—p. 56.
Acid Agglutination Optimum in Brucella Group. E. E. Ecker and M. A. Simon, Cleveland.—p. 62.
Hemolysin and Hemagglutinin for Sheep Corpuscles in Human Serums of All Iso-Agglutinative Groups. E. B. Perry and G. B. Rhodes, Chicago.—p. 65.
Hemolysin for Sheep Corpuscles in Precipitin Serums from Rabbits. L. Hektoen and E. B. Perry, Chicago.—p. 68.

Upper Respiratory and Middle Ear Infections.—Forty-six cases of human middle ear infections were studied bacteriologically by Fisher, and in fifteen of these the pathogenicity of the isolated bacteria was tested by intranasal inoculation of rabbits. The nasal passages of the rabbits were previously swabbed with a 50 per cent aqueous solution of phenol. Eleven of these rabbits died and in each case acute purulent paranasal sinusitis and acute otitis media were found. From these lesions, an organism similar to the type inoculated was recovered in each instance. Acute pleuritis and empyema, lobular pneumonia, lung abscesses, acute pericarditis and septicemia were found as associated lesions in some of the rabbits. From these lesions, organisms similar to those inoculated intranasally were recovered in each case. The experiments were controlled by

two groups of rabbits, one group receiving only intranasal cultures, the other receiving only phenol swabbing without cultures. None of the rabbits of these two groups died. Some factor which lowers the resistance of the nasal mucosa is necessary for the production of upper respiratory and middle ear infections. In twelve untreated normal control rabbits, no evidence of otitis media was found. It is thought that the use of 50 per cent phenol as a means of reducing tissue resistance may prove of value in the experimental production of infection in animals. The evidence here presented indicates that otitis media is not blood borne but takes place by direct extension from an upper respiratory infection.

Medical Journal and Record, New York

129: 61-120 (Jan. 16) 1929

"Incompetent" and "Avaricious" Physicians. G. B. Lake, Chicago.—p. 61.
Simulation of Various Intra-Abdominal Lesions by Intercostal Neuralgia of Abdominal Wall. J. B. Carnett, Philadelphia.—p. 64.
Hemochromatosis Associated with Primary Carcinoma of Body of Pancreas: Case. G. R. Critchlow, Buffalo.—p. 67.
Development of Speech. J. A. Glassburg, New York.—p. 69.
Cost of Hernia to Nation. I. Mayer, Detroit.—p. 71.
Diabetes: Its Pathogenesis and Protein Utilization. W. H. Porter, New York.—p. 73.
Eponyms of Medical Electricity. H. Goodman, New York.—p. 77.
Therapeutic Uses of Radium Emanation. J. Muir, New York.—p. 80.
Puerperal Morbidity and Mortality. P. B. Bland, Philadelphia.—p. 83.
Examination of Gynecologic Patients. W. T. Dannreuther, New York. —p. 87.
Female Sterility: 500 Cases. C. Mazer and J. Hoffman, Philadelphia. —p. 90.
Missed Abortion. F. Irving, Syracuse.—p. 94.
Superstitions of Pregnancy. M. T. Macklin, London, Ont.—p. 96.
Chorea Treated by Small's Antiserum: Two Cases. C. Charney, Philadelphia.—p. 99.
[illegible]: Two Cases. J. C. William, Philadelphia.—p. 100.
Pneumococcic Empyema Treated by Intrapleural Injections. J. Edeiken, Philadelphia.—p. 101.
Philosophy of Medicine in Antiquity. C. G. Cumston, Geneva, Switzerland.—p. 104.
Proctology in America and Abroad. M. J. Synnott, Montclair, N. J. —p. 109.

Minnesota Medicine, St. Paul

12: 1-64 (Jan.) 1929

Reportable Diseases in Minnesota. A. J. Chesley, St. Paul.—p. 1.
Fracture of Ankle Joint. O. W. Parker, Ely.—p. 6.
Pros and Contras in Use of Iodine for Treatment of Goiter. G. Schwyzer, Minneapolis.—p. 17.
Present Status of Prostatic Punch Operation. H. C. Bumpus, Jr., Rochester.—p. 22.
*Roentgenologic Diagnosis of Cardiac Diseases. L. G. Rigler, Minneapolis.—p. 25.
Injection Treatment of Varicose Veins. A. F. Bratrud, Minneapolis. —p. 33.
Case of Nutritional Disturbance, Showing Symptoms of Pellagra, Osteomalacia and Tetany. G. R. Constam and W. T. Partch, Rochester. —p. 40.

Roentgenologic Diagnosis of Cardiac Diseases.—Rigler says that the roentgen method is the most accurate means of determining the exact size and shape of the heart. The determination of an enlargement of the heart by this method may thus be the deciding factor in making a positive diagnosis of heart disease. The determination of the shape may aid greatly in diagnosing the type of pathologic condition present. Visualization of the esophagus may also assist in the diagnosis, as it may be compressed and displaced by enlargement of the left auricle. Disease of the mitral valves produces essentially three roentgenographic observations: (1) a distinct increase in the transverse diameter of the heart; (2) a marked convexity of the left border due to enlargement of the conus pulmonalis, and (3) a posterior displacement and compression of the esophagus in that portion which is in contact with the left auricle Disease of the aortic valves and hypertension produce practically the same roentgenographic observations. Essentially these are: (1) a marked concavity of the left border of the heart; (2) prominence of the left ventricle; (3) increase in the transverse diameter, and (4) a general enlargement (late) of the whole heart with the left ventricle predominating. Thyroid insufficiency may produce a flask-shaped heart which rapidly decreases in size on thyroid medication. Toxic conditions of the myocardium produce the same type of heart. Chronic lung conditions may produce a cardiac enlargement whose shape is similar to that of the mitral heart but without esophageal displacement.

New England J. Medicine, Boston

200: 105-158 (Jan. 17) 1929

Work at Pondville Hospital. E. M. Daland, Boston.—p. 105.
Certain Clinical Aspects of Malignant Lymphomas. H. Jackson, Jr., Chestnut Hill, Mass.—p. 108.
Radium in Treatment of Cancer. I. Gerber, Providence, R. I.—p. 109.
Electrosurgery in Treatment of Cancer. G. W. Taylor, Boston.—p. 110.
Cancer of Female Genitalia. J. V. Meigs, Boston.—p. 111.
Biopsies and Frozen Sections. S. Warren, Boston.—p. 112.
Cancer as Responsibility of Every Citizen. R. C. Cabot, Cambridge, Mass.—p. 113.
Enlarging Cancer Program. G. H. Bigelow, Boston.—p. 116.
Cancer Education in Massachusetts. R. W. Kelso, Boston.—p. 116.
Social Infection and Community. W. Lawrence, Boston.—p. 119.
Injection Treatment of Varicose Veins. R. B. Cattell, Boston.—p. 123.
Fractures of Carpal Scaphoid. J. H. Burnett, Boston.—p. 126.

New Orleans Medical and Surgical Journal

81: 457-526 (Jan.) 1929

Toxemias of Pregnancy. J. O. Polak, New York.—p. 457.
Acute Conditions in Lower Abdomen of Female. W. W. Chipman, Montreal.—p. 463.
Actinomycosis in Louisiana. H. B. Gessner, New Orleans.—p. 469.
Conservatism in Surgery. J. F. Armstrong, Jackson, Miss.—p. 471.
Radium in Treatment of Uterine Disease. W. W. Crawford, Hattiesburg, Miss.—p. 474.
Use of Radium in Malignancies and Certain Gynecologic Conditions. T. W. Holmes, Winona, Miss.—p. 477.
*Clinical Value of Neutrophil Nucleus Index, Lymphocyte Index and Monocyte Index in Tuberculosis. W. J. Durel, New Orleans.—p. 480.
Endocrine Influence on Gastric Secretion: Hypothyroidism. M. D. Levy, Houston, Texas.—p. 487.
Use of Footprints and Fingerprints as Identity Records in Maternity. H. Cummins, New Orleans.—p. 493.
Treatment of Varicose Veins by Injections of Sclerosing Solutions. S. C. Lyons and C. B. Brewster, Jr., New Orleans.—p. 498.
Neurology and Ear. G. C. Anderson, New Orleans.—p. 504.
Case of Ainhum. R. C. Hill, Bellamy, Ala.—p. 509.

Neutrophil Nucleus Index, Lymphocyte Index and Monocyte Index in Tuberculosis.—Durel is convinced by his study that the more "active" and the more toxic the patient, the higher the number of monocytes in the circulating blood, and therefore the lower the monocyte index. His observations show that, in the very "active" and toxic cases of tuberculosis, there is a rise in the lymphocyte index but a fall in the monocyte index. Cases of clinically "inactive" hilum and pulmonary tuberculosis show a lymphocyte nucleus index varying from 0.7 to 1.8; a monocyte index varying from 3.7 to above 17, and a neutrophil nucleus index varying from 94 to 75. In cases of mild "activity" the lymphocyte index ranges from 1.6 to 3.1, and the monocyte index from 1.8 to 8.6. The neutrophil nucleus index rises more frequently above 94. In the active and toxic case there is a lymphocyte index of from 2.6 to 7.5, and a monocyte index of from 0.7 to 3.6. The neutrophil nucleus index rises often above 94. In a very toxic case, the lymphocyte index ranges from 3.6 to 7.1, and the monocyte index from 0.6 to 2.1. The neutrophil nucleus index seldom falls below 96. Following a reaction to the subcutaneous injection of old tuberculin in reactive doses, there is always a marked rise in the lymphocyte index and a fall in the monocyte index. The neutrophil nucleus index also rises above 96. The total count is slightly increased, according to the severity of the reaction.

New York State J. Medicine, New York

29: 65-128 (Jan. 15) 1929

Use of Radium in Diseased Tonsils. J. C. Seal, New York.—p. 65.
Impressions of Medical Clinic. B. J. Delatour, New York.—p. 68.
Undulant (Malta) Fever (A). L. Coville and C. M. Carpenter, Ithaca, N. Y.—p. 72.
Diabetes and Infection. H. J. Spencer, New York.—p. 75.
Common Problems of Specialist and Internist. F. M. Sulzman, Troy, N. Y.—p. 79.
*Unusual Location of Solitary Tuberculoma. M. Gleich and A. M. Sala, New York.—p. 81.
Infant Circumcision. W. B. D. Van Auken, Troy, N. Y.—p. 82.
Laboratory Control of Milk Under New State Code. M. Maslon, Glens Falls, N. Y.—p. 85.

Unusual Location of Solitary Tuberculoma.—In the case reported by Gleich and Sala, the tubercle was in the left cerebral hemisphere, above the optic chiasm. It had a caseating center. There was no meningeal involvement. Of distinct interest also is the fact that, in spite of its size and location, the tubercle gave few eye signs and no neurologic manifestations until two weeks before death. The patient had a rapid pulse; convulsions and choked disk were absent, and he seldom vomited.

Physical Therapeutics, New York

47: 1-72 (Jan.) 1929

Infantile Paralysis: Its Epidemiologic and Clinical Aspects. L. W. Hill, Boston.—p. 1.
Anterior Poliomyelitis. W. B. Snow, New York.—p. 8.
Demonstration of Wave Measurements (Electromagnetic). J. H. Hallberg, New York.—p. 29.
Therapy with High Frequency Electromagnetic Energy. F. T. Woodbury, New York.—p. 37.
Scope of Physical Therapy. W. B. Snow, New York.—p. 54.

Southern Medical Journal, Birmingham, Ala.

22: 1-100 (Jan.) 1929

Promotion of Common Welfare: Aim of Modern Medicine. W. R. Bathurst, Little Rock, Ark.—p. 1.
Evolution of Surgical Teaching in United States. A. Ochsner, New Orleans.—p. 4.
Is Malignant Hypertension a Disease Entity? J. B. McElroy, Memphis, Tenn.—p. 7.
*Uses and Abuses of Cholecystography. E. A. Graham, St. Louis.—p. 10.
Philosophy and Logic of Diagnosis in Urology. B. Lewis, St. Louis.—p. 15.
Brief Outline of Dermatology in Relation to General Practitioner. G. M. MacKee, New York.—p. 21.
Medical Education and Public. S. Graves, University, Ala.—p. 27.
Decade of Transition in American Psychiatry. W. E. Gardner, Louisville, Ky.—p. 31.
Diarrheal Conditions in Southern States. E. C. Mitchell, Memphis, Tenn.—p. 35.
Nasal Sinuses: Ethmoids. T. W. Moore, Huntington, W. Va.—p. 38.
Diagnosis of Acute Abdominal Diseases: Cases. F. K. Boland, Atlanta, Ga.—p. 41.
Southern Pioneers in Eye, Ear, Nose and Throat Specialty. E. A. Looper, Baltimore.—p. 42.
Ileal Stasis. J. B. Fitts, Atlanta, Ga.—p. 46.
*Conservative Treatment of Acute Pelvic Infections. W. T. Black, Memphis, Tenn.—p. 49.
*Podalic Version: 100 Cases. W. T. McConnell, Louisville, Ky.—p. 55.
Cooperation. B. L. Arms, Jacksonville, Fla.—p. 63.
Cholecystitis. W. A. Bryan, Nashville, Tenn.—p. 64.
Physical Therapy in Railway Surgery. A. E. Chace, Texarkana, Ark.—p. 69.

Uses and Abuses of Cholecystography.—Graham points out that death has not followed the use of properly performed intravenous cholecystography in his experience with about 15,000 cases. Even if an occasional death should occur when all precautions are used, as perhaps it will, intravenous cholecystography seems to be far safer and is probably as accurate diagnostically as exploratory laparotomy for questionable lesions of the gallbladder.

Conservative Treatment of Acute Pelvic Infections.—Black pleads for delay rather than an immediate operation in most cases of acute pelvic infection. He deplores too early intervention. He feels that operation during the acute stage of a pelvic infection is rarely justifiable. Only for pelvic abscess or possibly for drainage in severe peritonitis is an operation justifiable. Patients with acute pelvic infections should be given the opportunity to recover before one operates. Although the mortality may be low in the hands of a few expert surgeons when operation is done in acute cases, the collective mortality rate will be much higher when patients are operated on during the acute stage. The morbidity is much higher in acute cases. Many unnecessary operations will be performed by those performing an immediate operation in acute pelvic infections.

Plea for Podalic Version.—Of the 100 patients analyzed by McConnell, forty were primiparas and sixty multiparas. There were six fetal deaths among the primiparas, or 15 per cent, and ten fetal deaths among the multiparas, or 16 per cent. Among the primiparas, two of six fetal deaths were due to cephalopelvic disproportion and four to other conditions of the mother or fetus. In the multiparas, only one of the ten fetal deaths was due to disproportion, and nine were due to other causes. This would seem to bear out the natural conclusion that the procedure is easier of accomplishment in the multipara, and that cephalopelvic disproportion as an indication for version is more frequent in the primipara, but other conditions more frequently constitute the indications in the multipara. The author says that if those men who have a large obstetric practice, or who have not ready access to expert help, would become thoroughly familiar with the technic of the operation, and would embrace opportunities to perfect their skill therein, many babies and not a few mothers who otherwise would be lost could be saved by the use of podalic version.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. Tuberculosis, London

22: 161-211 (Oct.) 1928

Preventive Vaccination of New-Born Against Tuberculosis by B C G. A. Calmette.—p. 161.
Phenomenon of Flocculation in Syphilis and Tuberculosis. A. Vernes.—p. 165.
Diagnosis and Treatment of "Infraclavicular Early Tuberculous Infiltration" of Lungs. O. Amrein.—p. 170.
Treatment of Pulmonary Tuberculosis by Antimony. P. Moxey.—p. 173.
Educational Service of National Association for Prevention of Tuberculosis. W. Brand.—p. 17[illegible].

23: 1-62 (Jan.) 1929

Artificial Light Treatment at Tuberculosis Dispensaries for Non-pulmonary Tuberculosis. G. L. Cox.—p. 1.
Silicosis and Tuberculosis. J. L. Stewart.—p. 6.
Absurdity of Open-Air Treatment: Application of Ultraviolet Rays in Treatment of Tuberculosis and Other Diseases. D. C. L. Fitzwilliams.—p. 12.
Care of Tuberculous Cripple. M. Forrester-Brown.—p. 17.
First International Light Conference and Professor Rollier's Jubilee. P. Roussel.—p. 21.
1928 Conference of National Association for Prevention of Tuberculosis. S. G. Peill.—p. 26.
"Sanatorium Universitaire" of Leysin, Switzerland. L. C. Vauthier.—p. 30.

British Medical Journal, London

1: 53-88 (Jan. 12) 1929

Cerebral Tumors. H. S. Souttar.—p. 53.
Spa Treatment of Disease. R. Waterhouse.—p. 57.
Fractures of Lower End of Radius in Adults: (Colles's Fracture and Backfire Fracture). H. Edwards and E. B. Clayton.—p. 61.
*Miners' Cramp. E. M. Brockbank.—p. 65.
*Pregnancy Associated with Diabetes Mellitus. K. S. Smith and F. Roques.—p. 66.
*Protein Therapy in Insanity of Puerperal Origin. V. Barkin.—p. 67.
Acute Gastric Dilatation Associated with Pulmonary Tuberculosis. W. Stobie.—p. 67.
Virulent Diphtheria Affecting Four Members of Same Family. L. B. Phillips.—p. 68.
Electromagnet in Surgery. H. L. Whale.—p. 68.
Idiopathic Hemorrhage in New-Born: Recovery After Treatment with Whole Blood. G. H. Roberts.—p. 68.

Miners' Cramp.—Brockbank's patient complained of curious attacks of muscle cramps, which came on while he was working. They began suddenly in the fingers and toes (in tetaniform manner), increasing in severity and gradually ascending the limbs to the back and neck. The cramp in the trunk and limbs lasted a few minutes and then eased somewhat in the limbs, but the hands and feet still remained more or less contracted and would continue so for three or four days. He would then feel well enough to return to work, although not with his former vigor. He has vomited with the severity of the pain. He has had about six or seven attacks during the last two years. He works in a mine which is hot and dry, and perspires to a considerable amount while working, and also when walking about after recovering from an attack of cramp. During his working hours (one shift from 5:30 a. m. to 2:30 p. m.) he drinks from 5 to 6 pints of water, followed by about a pint of tea with his dinner, and half a pint for tea, and he takes about four glasses of beer in the evening—that is, about 8½ pints of fluid in the day. He does not take salt except in his food, and has no particular desire for salt food, as some miners who suffer from the cramps have. There were no objective signs of any organic disease. Brockbank has found only two references to miners' cramp in the literature.

Pregnancy Associated with Diabetes Mellitus.—Smith and Roques believe that their case shows that treatment with insulin renders sterility less probable in diabetic patients. Their patient was taking insulin before she became pregnant. The case shows that the dangers associated with pregnancy and labor in diabetic women no longer exist. There can be no doubt that the requirements of a growing fetus put a strain on the resources of a diabetic patient. This is shown by the fact that six days after delivery the blood sugar fell to an alarmingly low level. Only half as much insulin had to be given after the birth of the child as before. A warning arises in that hypoglycemic coma may occur after delivery if the dosage of insulin is not reduced. The reduction should be made in accordance with frequent blood sugar estimations.

Protein Therapy in Insanity of Puerperal Origin.—Six weeks after parturition, Barkin's patient became restless and confused, indifferent to her surroundings, incapable of giving any account of herself, and entirely influenced by hallucinations. About three months later she passed into the catatonic state, assuming peculiar attitudes and exhibiting negativism. This condition was replaced about six months afterward by one of excitement. The patient was put on a light diet; the intestinal tract was well cleared, and a minor degree of dental sepsis was treated. A stock mixed vaccine (T. A. B. 2,500 million per cubic centimeter) was used and a preliminary dose of 100 million was injected into the median basilic vein. The maximum pyrexia (104 F.) was noted four hours after the injection, and the patient complained of intense headache; cyanosis was marked. This condition was maintained for twelve hours, after which the temperature gradually subsided and reached the normal at the end of thirty-six hours. The intravenous injection was repeated on alternate days with gradually increasing doses of T. A. B. vaccine until fourteen injections had been given, the maximum dosage being 2,500 million. During this period a nourishing light diet was augmented by unlimited lemon juice and bland fluids. The mental state of the patient improved but only for a short time. A second course of vaccine injections was given consisting of nine increasing doses, from a minimum of 125 million to a maximum of 5,000 million. The reactions in most instances were more severe than in the initial course; they were accompanied by rigors and marked constitutional disturbances. This period of excitement persisted for several weeks, but gradually subsided. Since then a gradual improvement has been maintained. After a three months' convalescence, she was discharged recovered.

Lancet, London

1: 113-166 (Jan. 19) 1929

Myofibrositis as Simulator of Other Maladies. G. F. Murray.—p.113.
*Segmental Hyperalgesia Associated with Hemoptysis. A. I. G. McLaughlin. —p. 116.
*Pregnancy Complicating Simple Goiter and Exophthalmic Goiter. H. Gardiner-Hill.—p. 120.
Lymphomas of Orbit. R. E. Wright.—p. 124.
*Estimations of Lead in Tissues of Lead-Treated Patients and Animals. M. Jowett, W. J. Dilling and W. B. Bell.—p. 126.
Uremia Simulating Acute Intestinal Obstruction: Case. L. Cole.—p. 128.
Chronic Mental Disease Associated with Ovarian Dysfunction: Case. A. Danby and K. Sykes.—p. 129.
Blood-Sugar Estimations in Treatment of Diabetic Coma. P. Bayer and A. V. Neale.—p. 129.

Segmental Hyperalgesia Associated with Hemoptysis.—McLaughlin reports on the association of hemoptysis and segmental hyperalgesia, which he says has not been previously described. The study of a series of cases has raised many interesting problems, such as the interpretation of the varied reflex phenomena and their paths of transmission, the innervation of the lungs and pleura, and the subjective phenomena of pulmonary disease. In regard to the presence of segmental hyperalgesia in association with recent hemoptysis, and in the absence of other definite clinical, roentgenologic, and bacteriologic evidence, McLaughlin feels that it may be considered an early sign of a nonexcavated inflammatory lesion in the lung. Its connection with hemoptysis is accounted for by the fact that the latter is a very common sign of inflammatory changes in the lungs. Further, the situation of the hyperalgesia definitely indicates the side and site of the lesion. Apical lesions are connected with the third and fourth and occasionally the fifth dorsal segments of the spinal cord, whereas basal lesions are associated with the fifth, sixth and seventh, and occasionally the eighth, dorsal segments. The hyperalgesic areas are invariably situated, both anteriorly and posteriorly, close to the midline of the body, but those due to basal lesions are placed about 2½ inches more laterally than the apical areas.

Pregnancy Complicating Simple Goiter and Exophthalmic Goiter.—Gardiner-Hill analyzes twenty-six cases of simple goiter and eighty-nine cases of primary exophthalmic goiter. Of the twenty-six cases of simple goiter, all but two were sporadic. Twelve of these had originated primarily in adolescence and persisted into adult life, while the remaining fourteen had developed in adult life. In all but two of the latter group, the goiter developed originally during pregnancy or the puerperium. It would seem, therefore, that simple goiter, developing in adult married women at times other than these, is comparatively rare. The incidence of pregnancy in these cases is well up to the average. The effect of pregnancy on the goiter was, in the majority of cases, a further hypertrophy of the gland and, in multiparas, the steplike enlargement which was found by Lawson Tait. In two patients on whom partial thyroidectomy had been performed before pregnancy occurred, there was a recurrence of the goiter during pregnancy. As in the series of cases of goiter developing in married women in adult life, these patients also almost invariably developed symptoms of hypothyroidism in later life. Six of the fourteen did not have a subsequent pregnancy. The disease in eight of the seventy-one cases of primary exophthalmic goiter originally developed during pregnancy. In six this had no adverse effect on the pregnancy, which pursued a normal course to full term. In the seventh patient, the child was stillborn. The eighth patient miscarried at three months, shortly after the onset of the disease. In forty, or 56.3 per cent of the seventy-one, the patient was first seen within two years of the onset of the disease, during which time there had been little possibility of a subsequent pregnancy. The majority were either in the hospital or under active medical supervision for the greater part of this time. These cases, therefore, can be eliminated from the discussion. Pregnancies occurred in seventeen of the thirty-one remaining cases in which the interval after the onset of the disease was sufficiently long to have made it a possibility. In spite of the fact that a relatively high proportion of patients (54.8 per cent) became pregnant after the onset of the disease, there are few instances of more than one pregnancy occurring—only four in this series. A summary of the results of pregnancy in the seventeen cases in which it occurred shows that out of a total of twenty-three pregnancies ten were completed normally. On the other hand, there were nine miscarriages, one premature birth, and two full term stillborn children, while one patient was pregnant at the time of observation. The early stages of pregnancy appear to be slightly more dangerous than the later, for the majority of the miscarriages occurred in the first four months. The result appears to depend more on the severity of the disease at the time of pregnancy than on the length of time during which the patient has suffered from it. In no instance were the symptoms exaggerated during pregnancy. In eight patients, 42 per cent, an improvement occurred during pregnancy without any subsequent relapse, while in nine patients, 47 per cent, the improvement was not maintained. In two women an improvement during pregnancy was followed by hypothyroidism. Of the eighteen cases of secondary exophthalmic goiter, the primary simple goiter in eleven had persisted from adolescence, while in seven it had originated in adult life. The majority of the adolescent goiters first appeared about the time of puberty. In three of the adults the goiter originated during pregnancy. In a few cases there was a strong family history of goiter, but in only one instance had the patient lived in a goitrous area. Before the onset of thyrotoxic symptoms, the incidence of pregnancy was approximately the same as in the cases of simple goiter; pregnancies occurred in 61 per cent, while in the remainder, 39 per cent, there was sterility. Secondary thyrotoxic symptoms developed usually between the ages of 27 and 42; the exciting factors were shock, mental stress or sepsis, alone or in combination. There were no instances of secondary thyrotoxic symptoms developing during pregnancy or the puerperium, an observation of some interest when it is considered how frequently primary exophthalmic goiter develops during these periods. Pregnancy after the onset of thyrotoxic symptoms was rare.

Estimations of Lead in Tissues of Lead-Treated Patients.—According to Jowett et al., in a case of secondary carcinoma of the liver, there was four times as much lead in the liver as in the liver tissue in the neighborhood, although this tissue contained areas of growth. The primary carcinoma of the breast contained more lead than any normal tissue except the kidney. A periosteal sarcoma contained more lead than the adjacent normal bone. Thus there is some evidence that lead is particularly attracted to malignant tissue, though in a case of sarcoma there was less lead than in the normal tissues. In this patient the liver also contained only a small quantity of lead.

Annales de Médecine, Paris

24: 345-472 (Nov.) 1928

Modern Conception of the Origin of Cancer. G. Roussy.—p. 345.
New Type of Rous Sarcoma. H. T. Deelman.—p. 360.
Etiology of Cancer. G. Roussy.—p. 371.
Culture of Tissues and Its Application to the Study of Cancer. G. Roussy, R. Leroux and M. Wolf.—p. 396.
Use of Lead in Treatment of Cancer. S. Laborde.—p. 411.
Frequency of Cancer. G. Roussy and A. Héraux.—p. 419.
*Diet and Tar Cancer. J. Maisin and François.—p. 455.

Influence of Diet on Origin and Evolution of Tar Cancer.—Maisin and François experimented on two groups of mice. The mice in the first group (controls) were fed with wheat flour, corn and white bread; each of the mice in the second group received, in addition to this, 5 Gm. of fresh liver, three times weekly. All the mice were painted with tar three times a week for 120 days. On the one hundred and twentieth day cancer was observed in 21.5 per cent of the mice on the liver diet, but in only 4.16 per cent of the control mice; on the two hundred and tenth day cancer was observed in all mice on the liver diet, but in only 62.85 per cent of the controls. The percentages of pulmonary and axillary metastasis were 37.9 and 59.4, respectively, in the controls and 55 and 72.6 in the mice fed with liver. The control mice lived, on the average, seventy days longer. The authors obtained the same results by substituting dried and ether washed powdered liver for the fresh liver in the diet. The authors think that the liver acts in these cases not simply by increasing the protein content in the diet but by means of some specific substance similar to the one that has proved so efficient in the treatment of pernicious anemia.

Bulletin Médical, Paris

42: 1411-1438 (Dec. 26-29) 1928

How to Avoid Failures in Prophylactic Treatment of Syphilis with Arsenic. H. Gougerot.—p. 1417.
*Relation Between Syphilis and Albuminuria in Pregnancy. L. Devraigne.—p. 1419.
*Advantages of Suboccipital Puncture Over Lumbar Puncture. C. Simon.—p. 1421.
*Treatment of Syphilis with Fat-Soluble Bismuth Compounds. P. Fernet and P. Boyer.—p. 1422.
Comparative Value of Hemolysis and Flocculation Tests. W. Lévy.—p. 1424.

Relation Between Syphilis and Albuminuria in Pregnancy.—On the basis of numerous observations, Devraigne believes that certain albuminurias of pregnancy may be the first manifestation of latent acquired or hereditary syphilis. The albuminuria may occur at any time during pregnancy, with or without nephritis, is quite refractory to the routine treatment and may end in eclampsia or in death of the fetus. The Wassermann reaction may be negative, but the good result of mercury treatment is an aid in the diagnosis.

Advantages of Suboccipital Puncture Over Lumbar Puncture.—Simon describes the technic of suboccipital puncture, which is replacing lumbar puncture in Brazil. The patients return to their occupations after one hour of rest. Of 406 patients, only one complained of cephalalgia after suboccipital puncture, whereas 20 per cent of 4,500 patients had some complication after lumbar puncture. Patients who did not tolerate lumbar puncture well stood suboccipital puncture well and vice versa. He thinks that the better tolerance for suboccipital puncture may be explained by the low or sometimes even negative pressure present in this region, which interferes with possible subsequent drainage of the cerebrospinal fluid.

Treatment of Syphilis with Fat-Soluble Bismuth Compounds.—Fernet and Boyer recommend a combined arsenic and fat-soluble bismuth treatment in syphilis and, in case of arsenic intolerance, the use of only a fat-soluble bismuth. In all their cases, injections of fat-soluble bismuth compounds were painless, with neither local nor general reaction (with the exception of stomatitis), and resulted in a rapid cure.

Bulletins et Mém. de la Soc. des Chirurgiens de Paris

20: 805-852 (Dec. 7) 1928

Indications for Cholecystectomy or Cholecystostomy in Emergency Cases. Desjardins.—p. 807.
Relation Between Intracranial Hypertension and Glaucoma. Bossy.—p. 809.
Submucous Cholecystectomy: Technic. J. Corin.—p. 811.
*"Deligamentopexy." R. Bonneau.—p. 815.
Foreign Bodies in Tunica Vaginalis. Lavenant.—p. 819.
Evolution of Juxta-Articular Femoral Bone Graft. R. Massart.—p. 822.
Serous Traumatic Retroperitoneal Cyst of Epigastrium. P. Muller.—p. 826.
Cure of Intracapsular Fractures of Femoral Neck by Application of Plaster Cast. H. Judet.—p. 834.
*Staphylococcal Tropical Abscesses. C. Nicolas.—p. 844.
Colocolic Invagination in Child. Duchet-Suchaux.—p. 846.

"Deligamentopexy."—Bonneau reports a case of late postoperative abdominal pains (in the erect position) in a woman, aged 34, after ventrifixation of the uterus. At the second laparotomy he found both tubes included deeply in the rectus muscles and the uterus enlarged. After the tubes had been freed, subtotal hysterectomy was done; the woman was promptly and completely cured. He proposes the term "deligamentopexy" for this operation, as it really undoes a badly done ligamentopexy.

Staphylococcal Tropical Abscesses.—Nicolas reports a case of typical multiple staphylococcal tropical abscesses in the left breast of a woman, without fever, pain or adenopathy, and with only slight redness. Four months of surgical and antiseptic treatment was ineffective, but the patient was promptly and completely cured by a few injections of antistaphylococcal vaccine into the diseased tissues.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

54: 1345-1397 (Dec. 15) 1928

Hematocolpos Due to Bleeding Tumor of Cervix Uteri. F. M. Cadenat.—p. 1346.
*Closure of Artificial Anus. F. M. Cadenat.—p. 1347.
Traumatic Separation of Symphysis Pubis. H. Gaudier.—p. 1350.
Open Reduction of Fracture of Calcaneus. Lenormant, Wilmoth and Lecœur.—p. 1353.
*Isolated Fractures of Lumbar Transverse Processes. L. Grimault.—p. 1356.
Hysterectomy and Ligation of Both Common Iliac Veins in Puerperal Infection. Ferrari, Houël and Jahier.—p. 1360.
Torsion of Spermatic Cord of an Ectopic Testicle in an Infant. Princeteau.—p. 1369.

Closure of Artificial Anus.—According to the indications present, Cadenat follows one of three methods of closure of an artificial anus: (1) extraperitoneal, (2) direct intraperitoneal and (3) indirect intraperitoneal. He reports two cases of artificial anus that he cured by the last named method, and describes his technic. He opens the abdomen at some distance from the artificial anus, which he excludes from the remainder of the bowel intra-abdominally by resection, closing the resected ends and reuniting the intestine by anastomoses. When the patient recovers from the first operation, Cadenat excises the artificial anus and reconstructs the abdominal wall.

Isolated Fractures of Lumbar Transverse Processes.—Grimault calls attention to the frequency of persistent severe pains, after fractures of the transverse processes of the lumbar vertebrae, requiring resection of these processes. This is due to compression and irritation of the spinal nerves and therefore is observed more often in fractures of the last two processes, because of a closer relationship between them and the nerves in this region.

Presse Médicale, Paris

36: 1657-1672 (Dec. 29) 1928

Insulin Treatment of Disturbances of Nitrogen Metabolism in Diabetes Mellitus. M. Labbé.—p. 1657.
Eupratic Epileptic Automatism. E. Toulouse, L. Marchand and J. Picard.—p. 1659.
*Painful Posttraumatic Osteoporosis. A. Floresco.—p. 1661.

Painful Posttraumatic Osteoporosis.—Floresco reports a typical case of painful posttraumatic osteoporosis that developed in a woman, aged 41, after a fracture of the inferior radial epiphysis on the right side. The fracture was reduced, and the forearm immobilized in a plaster cast. For one month the woman complained of severe pains in the whole right forearm, which was edematous but not painful on pressure. There were neither trophic nor sensibility disturbances; the nerve trunks were not painful on pressure. The movements of the fingers and the wrist were limited and painful. Roentgen examination showed osteoporosis of the right hand and of the distal part of the radius and the ulna. The Wassermann reaction was negative. Treatment with salicylates was ineffective, but after perihumeral sympathectomy and the application of a new plaster cast, the edema and pain disappeared in a few days, the move-

ments improved and in one month a roentgenogram showed considerable recalcification of the diseased bones. In two months the patient was completely cured.

Revue Française de Gynécologie et d'Obst., Paris

23: 561-624 (Oct.) 1928

*Effects of Spinal Anesthesia on Perineum of Women in Labor. J. L. Audebert and E. Estienny.—p. 561.
*Local and Distant Gangrene Caused by Application of Radium in Cervix Uteri. F. Jayle.—p. 572.

Effects of Spinal Anesthesia on Perineum of Women in Labor.—Audebert and Estienny studied the action of spinal anesthesia on the perineum of twenty-nine women in labor, with application of forceps in twenty-one, breech extraction in six or pubiotomy in two. In six cases there were perineal lacerations, and in eight cases an episiotomy was done. They think that spinal anesthesia relaxes the perineum considerably, and that it is a valuable aid in all obstetric interventions; they state, however, that it does not completely prevent perineal lacerations, especially in infantile types of perineum.

Local and Distant Gangrene Caused by Application of Radium in Cervix Uteri.—Jayle reports a case of gangrene of the uterus (cervix and body) and bladder and a case of gangrene of the uterus and the anterior wall of the rectum after the cervical application of normal doses of radium in the treatment of a localized cancer of the cervix. He thinks that the ideal treatment for such localized cervical cancers is amputation of the cervix, or vaginal or abdominal hysterectomy, which yielded 100 per cent cure in all of his cases, without complications.

Riforma Medica, Naples

44: 1512-1545 (Nov. 19) 1928

Subarachnoid Hemorrhage Due to High Blood Pressure, Associated with Uremia Resulting from Gouty Contracted Kidney. C. Frugoni.—p. 1513.
Clinical and Experimental Researches on Titanium Dioxide. L. V. Blina.—p. 1516.
Roentgenologic Aspects of Sclerosing Injections in Varices of Lower Limbs. P. del Torto.—p. 1525.
*Peculiar Type of Torpid Ulcer Occurring Solely on Island of Lagosta. A. Cusma.—p. 1527.

Peculiar Type of Torpid Ulcer.—Cusma describes a strange type of torpid ulcer that, as far as he knows, occurs only on the island of Lagosta, off the Dalmatian coast. The ulcer occurs extremely frequently, nearly the whole population being affected by it sooner or later. It is always single and the site varies with each recurrence. Involuntary self-inoculation has never been noted. The ulcer occurs mainly on the outer aspect of the lower leg (about 80 per cent of the cases), but also on the back of the forearm (15 per cent). It is never found on the inner aspect of the limbs, or on the head or neck. It does not develop where the skin is intact nor on large open wounds, but only at the site of minute, often unperceived, excoriations. After an incubation period of from three to ten days, a small nodule, as large as a millet seed, appears. It is reddish and slightly painful. The nodule increases in two or three days to the size of a pea but is flatter. After from three to four days, the nodule softens in the center, and a small vesiculopustule, from 3 to 5 mm. in diameter and very painful to the touch, develops. Almost always, during the formation of the vesiculopustule, an ascending lymphangitis occurs accompanied by a moderate fever (38-38.5 C.), which lasts from one to three days, ceasing without any treatment if rest is taken. The general health remains good. In about a week the vesiculopustule is transformed into an umbilicate pustule about 10 mm. in diameter. The pain, which has been considerable all along, now becomes more intense and takes on a peculiar character. About the fifteenth day the exudate has completely disappeared and the epidermis drops off. About half of the cases develop only up to this point, while the other half present the typical ulcer. When the epidermis drops off, instead of finding a second layer of epidermis formed, one observes a greenish brown base, with the formation of fatty spots. These spots become larger and in a few days cover the whole base of the ulcer, which is round or slightly oval, with sharply demarcated elevated borders. The ulcer is now painless, though the margins are sore to the touch. After a few days, part of the fatty layer becomes detached without causing pain. But no granulations are seen—only the same necrotic layer. And thus the course is repeated for from ten to fifteen times, the ulcer becoming about 1.5 mm. deeper each time. Finally, after from one to three months, one notes underneath the necrotic layer a few torpid granulations, and, in from two to three months more, the ulcer will have healed. On puncturing the ulcer during the first days, a clear fluid is obtained. After a few days, the fluid is much darker, with streaks of blood. The microscope reveals the presence of diplostreptococci, with a few erythrocytes well preserved. In a few days, the erythrocytes are more numerous but less well preserved. The diplococci disappear before the appearance of the granulations. If the pustule or ulcer is irritated with caustics or incisions, grave forms of lymphangitis develop, which lead not infrequently to suppurative adenitis, with high fever (40 C.), accompanied by severe general malaise. There are no other complications. There must be some secondary cause in addition to the diplostreptococci. The infection occurs during the period of greatest heat and dryness. During this season, a local variety of cabbage resembling brussels sprouts is indulged in to a great extent, as it is about the only green vegetable to be had at this time. The cabbage causes marked oxalemia and oxaluria. All patients with typical ulcers were found to be much affected with oxaluria. It is thought that oxalemia makes the skin hypersensitive to the sun's rays; hence the ulcers occur on the parts of the body most exposed to the sun. The only treatment that does not exacerbate the condition consists in lavage (repeated many times a day) with a tepid boric acid solution, after which the ulcer is dried and pure zinc oxide is applied. Of late the author has used, in place of zinc oxide, sudan mixed half and half with talcum powder. As prophylaxis, the writer recommends the wearing of stockings even in summer (apparently not the vogue on the island), bathing the feet and legs often—at least twice a day—and the avoidance of the local variety of brussels sprouts.

44: 1549-1577 (Nov. 26) 1928

*Splenomegaly with Mycosis. M. Lusena.—p. 1549.
*So-Called Pyloric Stenosis in Ulcer of Duodenal Bulb. G. Iesu.—p. 1560.

Splenomegaly with Mycosis.—Lusena reports two cases of thrombophlebitic splenomegaly in which he found evidence in the spleen of an infestation with Gamna nodules. He concludes that the best grounded of the hypotheses advanced thus far in regard to the characteristic elements of Gamna nodules, which are certainly of infective origin, seems to be that they are of a mycelian nature. There is not sufficient evidence for attributing to the virus of the nodule the origin of the various splenopathies in which nodules have been found, but rather the opposite; namely, the nodule represents the result of a localization of the virus, which is capable of attacking probably any spleen, especially if aided by circulatory changes (stasis), and which may constitute in itself an important anatomopathologic factor.

So-Called Pyloric Stenosis in Ulcer of Duodenal Bulb.—Iesu suggests, on the basis of his numerous observations, that it is more logical and more accurate, in the cases he describes, to speak of "bulbar stenosis," and favors abandoning the old term "pyloric stenosis," as the changes that actually occur are not designated by this term. In cases of isolated duodenal ulcer, while one may observe a spasm, one does not observe a true and proper organic stenosis of the pylorus.

Semana Médica, Buenos Aires

35: 1705-1780 (Dec. 20) 1928

Clinical and Roentgenologic Observations in Normal Thorax of Adults. J. A. Saralegui.—p. 1705.
"Situs Inversus" of Thoracic and Abdominal Viscera. T. Martini and J. Comas.—p. 1724.
*Vaginal Hysterectomy Under Local Anesthesia. A. Chueco, L. Feldman and J. I. Imaz.—p. 1729.
Filtrability of Tubercle Bacillus. J. Bacigalupo and A. E. Costa.—p. 1736.
Infections of Urinary Passages in Childhood. E. A. Beretervide.—p. 1739.
*Renal Tuberculosis in Argentina. J. Salleras and A. von der Becke.—p. 1745.
Extensive Angioma of Left Leg in Child. G. A. Schiavone.—p. 1760.
*Treatment of Functional Cardiovascular Disturbances. A. Jaubert.—p. 1771.

Vaginal Hysterectomy Under Local Anesthesia.—Chueco et al. believe that the good results which may be obtained with local anesthesia in hysterectomies for total uterine prolapse depend largely on the proper selection of the cases. In three of the four cases cited, the hysterectomy was performed without causing the patient pain and the postoperative course was uneventful. The fourth patient had had a previous operation for cystocele and rectocele. The second intervention was done in two succeeding stages. During the first stage the uterus was detached from the vagina and rectum. During the second stage, the adhesions which bound the fundus of the uterus to the large intestine were separated, but because of the severe pain resulting from this procedure, general ether anesthesia was resorted to in order to complete the operation. In emaciated weak patients the pains may cause fatal syncope and for this reason local anesthesia may be more dangerous than general narcosis.

Renal Tuberculosis in Argentina.—Salleras and von der Becke studied renal tuberculosis in Argentina. The percentage of hospital patients with renal tuberculosis in Buenos Aires varies between 9.15 and 28, giving an average considerably lower than that of Europe.

Treatment of Functional Cardiovascular Disturbances.—In patients with functional cardiac disturbances Jaubert advises the use of sedatives, such as bromides, valerian, quinine and benzyl benzoate.

Archiv für Gynäkologie, Berlin

135: 1-270 (Nov. 13) 1928

Report on Twenty-Five Years' Experience with Wertheim's Operation for Cancer. W. Weibel.—p. 1.
Genital Hypoplasia in Women. H. Naujoks.—p. 58.
Relationship Between Constitutional Hypoplasia and Mentality. F. Mauz.—p. 98.
Mucous Secretion and Mucous Cysts in Adenomatous Cancer of Body of Uterus. F. Isbruch.—p. 102.
Absence of Pathogenic Bacteria in Uterine Cavity in Pregnancy. F. Isbruch.—p. 108.
Effect of Number of Erythrocytes on Their Sedimentation Speed. H. Schäfer.—p. 128.
*Blood Pressure and Eclampsia. G. Schwarz.—p. 133.
Changes in Placenta in Edema of Pregnancy. L. Kraul.—p. 171.
Adherent Placenta. E. Klaften.—p. 190.
Placental Arginase. Wehefritz and E. Gierhake.—p. 212.
Influence of Menstrual Cycle on Hydrogen Metabolism. H. Eufinger and R. Spiegler.—p. 223.
Changes in Ureters During Pregnancy. H. Kamniker.—p. 232.
*Partial Resection of Ovaries in Oligomenorrhea and Amenorrhea. S. K. Lessnoi.—p. 250.
*Value of Amidopyrine Test in Diagnosis of Interrupted Tubal Pregnancy. S. M. Klein.—p. 256.
Clinical Evaluation of Action of Ovarian Preparations. A. A. Kogan and J. L. Libin.—p. 262.

Blood Pressure and Eclampsia.—Schwarz examined the blood pressure of 1,060 patients during pregnancy, labor and the puerperium, and found that in 95 per cent of normal women the blood pressure did not increase toward the end of pregnancy; during labor it increased slightly with each pain and dropped to normal between the pains; in the puerperium it remained normal, unless there was a severe hemorrhage, in which case it dropped from 10 to 15 mm. of mercury, but only for a short time. The increased blood pressure during pregnancy, labor and the puerperium, unless it was due to some intercurrent disease, was always a warning of threatened eclampsia, even if there were not any other signs of it. It never was in direct ratio to the danger, however, so that sometimes a persistent and pronounced hypertension was of less significance than some short attacks of marked hypertension occurring in a patient with only a slightly elevated blood pressure. At the danger of preeclampsia everything raising the blood pressure or the intracranial pressure, such as different means for producing uterine contractions or raising the pelvis or even the legs, should be avoided. After the emptying of the uterus the blood pressure dropped from 10 to 15 mm. and returned to normal in one day in most of the cases of preeclampsia, but very often only after from two to three weeks in eclampsia, depending on the number of attacks of convulsions and on the intensity of the puerperal bleeding. There was no relationship between the blood pressure and the albumin in the urine in the puerperium, but there was a close relation between the hypertension, the diminished diuresis and the persistence of edema.

Partial Resection of Ovaries in Treatment of Oligomenorrhea and Amenorrhea.—Lessnoi reports one case of oligomenorrhea and one case of amenorrhea, both due to cystic ovaries. After partial resection of the ovaries in both cases, menstruation became normal. He thinks that oligomenorrhea and amenorrhea are due to ovarian dysfunction, and that partial resection of ovarian tissue, together with the tunica albuginea, may give an impulse both to the regeneration of the ovarian tissue and to the regulation of the ovarian functions.

Value of Amidopyrine Test in the Diagnosis of Interrupted Tubal Pregnancy.—Klein tried the amidopyrine test in sixty-eight cases of different gynecologic diseases and normal menses. It was positive in 90 per cent of the cases of interrupted tubal pregnancy, and in all cases of ovarian apoplexy and of normal menstruation, and negative in all other gynecologic conditions.

Deutsche medizinische Wochenschrift, Berlin

54: 2089-2130 (Dec. 14) 1928

Classification of Psychoses. K. Birnbaum.—p. 2089. C'td.
Nutritive Value of Raw and Cooked Food. E. Friedberger, A. Abraham and S. Seidenberg.—p. 2092.
Treatment of Local Inflammatory Changes in Scarlet Fever with Scarlet Fever Serums. E. Koenigsberger and S. Mussliner.—p. 2096.
Pathologic Hemagglutination. E. Kramár.—p. 2097.
*Late Examination in Skull Fractures. F. Selberg.—p. 2099.
Diabetic Coma with Abdominal Symptoms. M. Landsberg.—p. 2100.
Treatment of Circulatory Disturbances in Inoculation Malaria. E. Trautmann.—p. 2101.
*Treatment of Verrucae Planae Juveniles with Intracutaneous Milk Injections. F. Dietel.—p. 2101.
*New Apparatus for Diathermic Application of Heat. F. Nagelschmidt.—p. 2102.
Rectoscopy with the Cystoscope. W. Sternberg.—p. 2104.
Use of Litharge as an Abortifacient. F. Prange.—p. 2105.
Dried Buttermilk Powder in Infant Feeding. W. Christiansen.—p. 2106.
Casuistics of Situs Inversus Totalis. Durlacher.—p. 2106.
Cancer of Stomach. W. Zweig.—p. 2107.
Mortality Statistics of Abortions in Germany. Engelsmann.—p. 2112.
Determination of Heat-Retaining Capacity of Clothing Materials. A. Müller.—p. 2112.
Urethral Stricture and Marriage Permission. E. Langer.—p. 2113.

Late Examination in Skull Fractures.—Selberg reports the results of late examination of eight patients with skull fracture in whom the interval between the accident and the examination varied from one to seven years. He did not observe any neurologic or surgical changes in any of the patients. Three, however, complained of headaches; one showed increased irritability; one had occasional attacks of dizziness, and several others complained of alcohol intolerance. Not one of the patients was entirely free from discomfort, but all of them were able to resume their occupation and follow it without interruption.

Treatment of Verrucae Planae Juveniles with Intracutaneous Milk Injections.—The local treatment of verruca plana has, according to Dietel, many disadvantages. The unsightly scars which result from freezing the warts with carbon dioxide snow or other caustic agents such as sodium bisulphate or fuming nitric acid constitute the main objection. The treatment by the internal administration of drugs represents an essential advance. In many cases, however, these drugs are not effective. On the assumption that the warts are caused by a virus, and that the skin of some persons is susceptible to this infection, Dietel concluded that injections stimulating allergic reactions should be used. Twice a week the patients were given injections of fresh, sterilized cow's milk. From two to four intravenous wheals were produced on the forearms, each wheal requiring the injection of about 0.1 cc. of milk. The number of injections necessary differed with the individual patient. Sometimes good results were observed after the third or fourth injection, but in some instances as many as twenty were necessary. Of the twenty-four patients treated in this manner, twenty were completely freed from the warts. The author never observed scar formation, atrophoderma or pigmentary disturbances.

New Apparatus for Diathermic Application of Heat.—Nagelschmidt describes a new diathermy apparatus that is more convenient and less dangerous than the commonly used types of apparatus, as direct contact with the electrode is not

necessary. It has greater heating power and enables the practitioner to heat the whole body of the patient, or larger portions of it, without danger of burning. Treatments may be given for from four to five hours at a time. The apparatus can be used for heating the thorax in pneumonia, the brain and spinal cord in epidemic cerebrospinal meningitis, and the pelvis in gonorrhea. Nagelschmidt also suggests that it might be employed to produce an aseptic fever which would be helpful in combating infectious diseases. He reasons that a fever which is produced in this manner would not increase the combustion of body substances; all the injurious attendant phenomena of ordinary fever would be eliminated, while the protective qualities would be retained. It is necessary, of course, that the apparatus should be so regulated that the body temperature is not raised to more than 106.5 F.

Deutsche Zeitschrift für Chirurgie, Leipzig

212: 289-424 (Dec.) 1928

Action of Serum in Transfusion of Whole Blood. H. U. Kallius.—p. 289.
Treatment of Tetanus with Curarine and Tribromethyl Alcohol. E. Melzner.—p. 308.
*Postoperative Healing of Wounds in Roentgen Irradiated Tissues. S. Frey.—p. 325.
Weber-Rammstedt's and Loreta's Dilation. B. Hundsdörfer.—p. 330.
Function of Anastomosis Between Large and Small Intestine. W. Tönnis.—p. 339.
Experimental Inhibition of Growth in Epiphyses and Metaphyses. W. Müller.—p. 350.
Unilateral Bipartite Patella: Its Traumatic Origin. H. G. Zwerg.—p. 362.
Localized Osteitis Fibrosa (So-Called Brown Tumor): Presence of Actinomyces. H. Friedrich and M. Knorr.—p. 369.
Localized Osteitis Fibrosa. W. Dahs.—p. 384.
Operation for Harelip. A. Hagentorn.—p. 391.
*Prolapse of Bichat's Fat Pad Following Injuries of Mucous Membrane of Cheek. J. Brugger.—p. 398.
Odontoma. J. Heine.—p. 401.
Case of Symmetrical Fibromatosis. W. Kreiner.—p. 410.

Effect of Roentgen Irradiation on Wound Healing.—Frey feels that preoperative roentgen irradiation has a distinct influence on postoperative wound healing. He determined experimentally that the circulation in the irradiated tissue is impaired; the lumen of the vessels is narrowed, and some of the smaller vessels are completely obliterated. Two applications of a unit skin dose at intervals of three months did not have any effect on the vessels. Three doses, at intervals of eight weeks, had a distinctly noticeable effect on the arteries. Four doses, at intervals of six weeks, caused a narrowing of the vessels and the obliteration of some of them. Six treatments caused a considerable narrowing of the vessels and marked reduction in their number. As to the effect of such irradiation on wound healing, the author determined experimentally that if the operation is performed not later than eight weeks after the treatment, wound healing is not interfered with, as up to that time the vessels remain unaffected; but if the operation is performed three months afterward, some delay or slowing up of wound healing is noted, and this increases proportionately with the length of the time interval. Therefore, late operations are more likely to be followed by slow healing than are those performed before the end of the three months period.

Prolapse of Bichat's Fat Pad Following Injuries of Buccal Mucosa.—Brugger reports two cases of a condition that he asserts has not been described previously. An infant, aged 10 months, stabbed the mucosa of his cheek with a fork. Two days later a swelling the size of a bean was noted at the wounded spot. It grew rapidly, becoming larger than a hazelnut within thirty-six hours, and began to bleed. The tumor was removed by ligation and the site was cauterized with the Paquelin cautery. Complete healing followed. Examination of the tumor disclosed fat tissue interspersed with connective tissue fibers. The author is convinced that this represents an hypertrophy of Bichat's fat pad. In the second case, a child, aged 12 months, injured her cheek with a small toy tin flute, causing an injury of the mucosa which was followed by the development of a tumor similar to that in the first case within two days. It was removed by ligation and the wound healed promptly. The author is of the opinion that the suction action of the mouth was responsible for the appearance of these tumors, but that the injury was the immediate cause.

Klinische Wochenschrift, Berlin

7: 2421-2468 (Dec. 16) 1928

Anatomicopathologic Aspect of Lobar Pneumonia. A. Lauche.—p. 2421.
Neuromuscular Excitability in Tetany in Children. P. György and H. Stein.—p. 2424.
Determination of Hydrogen Ion Concentration in Circulating Blood. K. Gollwitzer-Meier and W. Steinhausen.—p. 2426.
Diagnostic Importance of Pathologico-Anatomic Changes in Pulmonary Apexes in Tuberculosis. S. Gräff.—p. 2428.
Effect of Administration of Dioxyacetone to Normal Persons and Diabetic Patients. A. Löw and A. Krēma.—p. 2432.
Identity of Climatic Bubo and of Lymphogranuloma Inguinalis. E. Hermans.—p. 2436.
Functional Diagnosis of Liver Diseases. D. D. Pletnew and O. Ssokolnikow.—p. 2437.
*Diagnostic Value of Indican Determinations in Urine. J. Olivet.—p. 2439.
*Rôle of Suprarenal Body in Production of Neutrophil Leukocytosis. W. Borchardt.—p. 2440.
Syndrome Similar to Amyotrophic Lateral Sclerosis, Observed After Epidemic Encephalitis. S. Jancsó.—p. 2442.
Modern Treatment of Rickets. H. Aron.—p. 2444.
Rôle of Education in Treatment of Psychosis. Gregor.—p. 2450.

Diagnostic Value of Indican in Urine.—Olivet determined the indican content of the urine of 150 patients with various diseases. Jolles' method was used with freshly voided urine. Indican was present in all cases in amounts varying from 1 mg. to 40 mg. daily. The indican content of the urine was found to be very variable in the same disease and even in the same patient and therefore is not of diagnostic value. Even in cases of ileus or in putrefactive processes there was often found a normal or low indican content. In cancers, peptic ulcers, dilatation or catarrh of the stomach, hepatic cirrhosis or icterus, extra-intestinal suppurations and small hemorrhages, there was usually no increase of indican, and its occurrence in those cases was caused only by increased intestinal putrefaction or severe hemorrhage. Therefore, the author feels that the amount of indican in the urine is not of any pathognomonic value in all these diseases.

Neutrophil Leukocytosis and the Suprarenals.—Borchardt never found a true neutrophil leukocytosis after the extirpation of the suprarenal bodies in animals; the injection of epinephrine or pilocarpine or choline did not produce leukocytosis, nor did a pneumococcus infection in most cases (infectious irritation) or mechanical irritation resulting from puncture of the thalamus or of the corpus striatum. In normal animals, on the contrary, all these agents produce a true irritative or infectious leukocytosis. It is not yet known which part of the suprarenal bodies governs leukocytosis.

Medizinische Klinik, Berlin

24: 1971-2006 (Dec. 21) 1928

Sport Injuries. W. Baetzner.—p. 1971.
*Surgical and Phonetic Results of Late Operations for Defects of Palate. Halle.—p. 1976.
Alleviation of Pain in Surgery. M. Jerusalem.—p. 1979.
*Sequelae of Epidemic Encephalitis. W. H. Crohn.—p. 1981.
Chyliferous Ascites in Liver Syphilis. H. Steinitz and A. Lewin.—p. 1982.
Clinical Aspects of Chronic Miliary Tuberculosis. W. Heimann-Hatry.—p. 1984.
Syphilis of Joints. H. Schlesinger.—p. 1985.
Usefulness of Ninni's and Molinari's Phenol Alcohol Extract as Antigen for the Wassermann Reaction. H. Gross.—p. 1986.
Researches on Creatinine Excretion in Patients with Exophthalmic Goiter. L. Feldmann and A. Wilhelm.—p. 1987.

Surgical and Phonetic Results of Late Operations for Defects of Palate.—Halle gives a detailed description of the operations he has performed to correct defects of the palate. He points out that the good results of his operations which were performed on adults contradict the general opinion that such operations can be successful only if performed on children during the first year of life. Because the vomiting following a general anesthesia frequently tears out the sutures, the author advocates local anesthesia. Most of his operations were performed in two or three stages. A number of his patients had undergone previous surgical treatment without the desired phonetic results. Halle asserts that most of the persons on whom he has operated are able to talk as well, or nearly as well, as those without defects of the palate. Some of them are now active as teachers and many are able to sing.

Sequelae of Epidemic Encephalitis.—Crohn observed 100 patients with epidemic encephalitis. About half of these recovered completely. Of the remainder, one third died; in the

other two thirds the condition was incurable. Those in whom the outcome was fatal came to the hospital in either an apathetic or an extremely restless state. Paralysis agitans was present in most of the incurable cases. Patients who recovered after a shorter or longer stay at the hospital showed symptoms of various psychoses and neuroses. In all these cases either influenza or somnolence had preceded the epidemic encephalitis. The Wassermann reaction was negative in all instances. Crohn believes that these sequelae are due to anatomic changes in the basal ganglions and the corpus striatum. The somatic symptoms were tremor, flow of saliva and a masklike expression of the face. In some instances changes of character were observed. One case is reported in detail. During the influenza epidemic this patient was somnolent and had visual disturbances. Gradually these symptoms disappeared. After a lapse of about six months his friends observed a complete change in his character. He neglected his business and showed an exaggerated interest in the stage. He wrote insulting letters to his old friends and frequently showed signs of megalomania.

Münchener medizinische Wochenschrift, Munich

75: 2127-2166 (Dec. 14) 1928

Relationship Between Susceptibility to Disease and Sympathetic Nervous System. E. F. Müller and W. F. Petersen.—p. 2127.
Investigations on Noguchi's Yellow Fever Spirochete Found in Organs of Africans Dying of Yellow Fever. W. H. Hoffmann and F. Jahnel. —p. 2131.
Orthostatic Albuminuria in Athletes. A. Brandeis.—p. 2132.
*Lime Therapy for Children. K. Klare.—p. 2135.
Prophylaxis and Treatment of Typhoid. F. Poleck.—p. 2136.
Significance of Skin in Immunity and Immunization. F. Neufeld.—p. 2140.
Bacteriology of Biliary Tract. Huntemüller.—p. 2140.
Hemorrhages in Puerperium. E. A. Koch.—p. 2148.

Lime Therapy for Children.—Klare asserts that many childhood diseases can be traced to a lack of lime in the organism. The lime deficiency in infants is mainly due to artificial feeding. The fact that cow's milk is rich in lime is of no avail, since a large portion of it is not absorbable. Breast milk is the only food which fulfils the normal lime requirements of the infant. In the later development of the child a sufficient quantity of milk will prevent a lime deficiency. Most authorities agree, however, that lime therapy is necessary in cases of a congenital predisposition to disease caused by exudative diathesis and by scrofula. Lime therapy has not been more widely applied because of the want of suitable preparations. The oral administration of lime is disliked by most patients, and intravenous injection frequently causes painful infiltrations. The author gave intramuscular injections of calcium gluconate. Of 100 children so treated, forty-two showed signs of exudative diathesis in the form of recurrent catarrhs, nervous phenomena, asthma and chronic eczema; the others were affected with some form of tuberculosis. Twice a week they were given injections of a 10 per cent solution of this preparation. The amount injected varied from 2 cc. to 10 cc. according to the age of the child. More recently the author combined the injections with the oral administration of lime tablets. The general condition, the appetite and the digestion of the patients did not show any disturbances during the cure. Klare considers this treatment a valuable adjunct in the therapy of the milder forms of tuberculosis. It proved very effective in all cases of exudative diathesis.

Zentralblatt für Chirurgie, Leipzig

56: 1-64 (Jan. 5) 1929

Tribromethyl Alcohol Narcosis for Phrenic Exeresis. N. Guleke.—p. 2.
Section of Common Bile Duct and Reimplantation in Cases of Extensive Resection of Stomach and Duodenum. G. E. Konjetzny.—p. 4.
Treatment of Supracondylar Fractures of Humerus in Children. E. Gold. —p. 8.
*Formation of Sphincter Muscle from Rectus Abdominis in Cases of Artificial Anus and Weak Urethral Sphincter. H. Hans.—p. 11.
Fixation of Kidney According to Kostlivý's Methods. B. Voženílek.—p. 14.
New Instrument to Aid in Tying Sutures at Bottom of Deep Wounds. E. Stahnke.—p. 16.
Use of Gloves with Webbed Fingers as Retractors in Abdominal Operations. W. von Oettingen.—p. 17.
Failure of Diagnosis of Incarcerated Inguinal Hernia. C. Weber.—p. 17.

Sphincteroplasty for Artificial Anus and Relaxed Urethral Sphincter.—Hans describes his technic for providing a sphincter for an artificial anus and for a relaxed urethral sphincter in men and women. In the former case he makes a median incision about 2 inches long through which he extracts a loop of colon. A second incision is made a little to the right or left of the first incision, thus forming a bridge of abdominal wall. However, the second incision extends only through the skin down to the anterior rectus abdominalis fascia. This fascia is then carefully freed from the underlying muscle so as not to disturb its nerve supply. The loop of colon is drawn through between fascia and muscle and is properly anchored. It is contended that the contraction of the rectus presses the bowel against the firm fascial band and thus causes sphincteric action sufficient to give the patient control of the bowel. A similar result is obtained in urethral cases by slinging a strip of rectus and external oblique muscle fascia around the urethra behind the pubic bone in both men and women. A long strip from the right side forms the encircling loop and is united to a short strip from the left side. The contraction of both muscles pulls on this fascia and gives sphincteric control.

Hospitalstidende, Copenhagen

71: 1127-1152 (Oct. 18) 1928

Luxation of Semilunar Bone. C. Nannestad.—p. 1127.
*Autotransplantation of Endometrium and of Uterine Epithelium to Ovary of Guinea-Pig. E. Dahl-Iversen.—p. 1136. C'td.

71: 1153-1180 (Oct. 25) 1928

*Autotransplantation of Endometrium and of Uterine Epithelium to Ovary of Guinea-Pig. E. Dahl-Iversen.—p. 1153. C'cn.
Widal Reaction After Recovery from Paratyphoid. M. Kristensen.—p. 1172.

Autotransplantation of Endometrium and of Uterine Epithelium to Ovary of Guinea-Pig.—Dahl-Iversen's experiments with sixteen autotransplantations of endometrium and ten of uterine epithelium to the ovary, made in sixteen guinea-pigs, are published in detail. These studies and earlier experimental studies support Sampson's theory of endometrioid formations as altered in his later works to cover only implantation of endometrium.

71: 1207-1232 (Nov. 8) 1928

Preparation of Isotonic Solution with Blood Serum for Use in Determination of Relative Osmotic Pressure of Cations in Serum and Volume Index of Blood Corpuscles in Cutaneous Blood. I. Christensen and E. J. Warburg.—p. 1207.
Metal Salts Therapy. A. Brun.—p. 1225.
*Injection of Congo Red in Clinical Diagnosis of Amyloidosis. M. Nathan. —p. 1227. C'td.

71: 1233-1260 (Nov. 15) 1928

Infiltrative Processes in Lungs of Tuberculous Children. E. Gjörup.—p. 1233. C'td.
*Injection of Congo Red in Clinical Diagnosis of Amyloidosis. M. Nathan. —p. 1252. C'cn.

Injection of Congo Red in Clinical Diagnosis of Amyloidosis.—Nathan reviews Bennhold's quantitative method, in which the amount of injected dye bound by the amyloid substance during one hour is determined, and Paunz's qualitative procedure, in which so small a quantity of dye is injected into blood that the entire amount is bound in one hour if amyloidosis is present. A series of injections was made by means of Paunz's method in thirteen patients; in nine without clinical evidence of amyloidosis the results were negative; in three with clinical amyloidosis, results were positive (one case confirmed by necropsy), and in one patient with possible incipient amyloidosis, results were negative.

Hygiea, Stockholm

90: 929-960 (Dec. 15) 1928

Views on Causes of Degeneration. H. von Samson-Himmelstjerna.—p. 929.
*Bang's Micromethod for Determination of Lipoids in Blood. G. Blix. —p. 934.

Bang's Micromethod for Determination of Lipoids in Blood.—Bang's procedure, based on the selective extraction of the different lipoid fractions followed by a determination, by a volumetric oxidation method, of the isolated products, has been applied by Blix since 1925. He asserts that it is at present the only thoroughly tested micromethod for the determination of the blood lipoids, and the only method which renders possible the determination of the neutral fat by itself. It is adequate for a large number of purposes, but not sufficiently accurate for the determination of very small quantitative changes in the lipoids of the blood. Technically it is difficult and necessitates great care for reliable results.